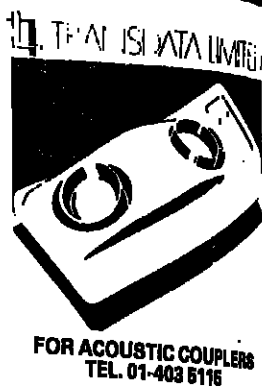




Computer Weekly

Thursday, October 7, 1982



FOR ACOUSTIC COUPLING
TEL: 01-403 5116

Logabax UK out of the red

by Kevin Cahill
AN enterprising management buy-out has converted loss-making Logabax UK into a profitable operation for the first half of this year.

The former subsidiary of the French company Logabax, itself the subject of a recent rescue operation, has turned a loss of £400,000 last year into a £150,000 profit for the first half of this year.

Paul Bion, managing director of Logabax UK, said the company had achieved the turnaround without the aid of outside finance.

Bion and fellow directors Chandras Wirsing and Bryan Senior own 100% of the share. Last year Logabax UK, which is changing its name to Technology For Business, had a turnover of £4 million. This year Bion says that turnover will be slightly less, but the company will make a profit.

Bion says many of the problems the company had when it was a Logabax subsidiary stemmed from trying to supply too wide a range of products at an entry price of £5,000 and below.

Bion has moved the company away from Logabax computers to become one of the biggest Systime OEMs.

Although Technology For Business still supplies some Logabax printers and will be Logabax's representative in the UK, most of its products are from sources other than the former French parent.

The restructuring and transfer to new offices have produced a company with a staff of 63, compared with the 97 employed at a Logabax subsidiary.

Bion says that the move to UK sourcing has shielded the company from currency fluctuations, and given them a supplier who can easily be reached physically.



HARRISON... 1,250 visitors a day expected.

Racal in cellular radio consortium

by Donald Kennett
MARKETING deals with four US companies and more than 100 new products were the features of Racal's ninth exhibition and symposium in London last week. And many major orders were announced.

A new company called Racal-Millicom has been formed with Millicom in the US, Comvick of Sweden, and Hambros Bank to operate a cellular radio telephone service in the UK using Millicom equipment.

Racal also is to become the major international distributor of shipborne earth stations for marine satellite communications made by Comsat General Telesystems. They are designed for use with the Inmarsat communications system inaugurated in February.

Two US companies, California Micro Devices and Torric, have signed franchises to design and

market custom chips based on Racal's gate array technology. And in West Germany, a subsidiary has been set up to support similar activities in Europe.

The company had previously lined up a joint venture to develop and manufacture advanced CMOS devices with General Instrument Microelectronics and Leuven Research and Development in Belgium.

Racal chairman Sir Ernest Harrison announced that 1,250 visitors a day were expected at the exhibition with 750 coming from 90 overseas countries, while 4,000 planned to attend the 12 lecture sessions. That would make it the largest private demonstration of professional electronic equipment in the world.

Major orders highlighted at the show included US based Racal-Vadic's first sale to Australia for V22 full-duplex two-wire 1,200 bit/second modems. In the US it is

developing modems for "telemuting" by personal computer users. In the UK the first order for the recently launched Omnimodem modem was for £300,000, while the Planet local area network has won £500,000 worth of orders since March.

The Department of Industry is to put £197,000 towards a £500,000 study Racal will make of the potential application of computing and electronics to reducing costs at sea. The study will investigate the possibility of integrating systems for voyage management, data communications, engine monitoring, cargo planning, and administration.

British Telecom has added orders for 1,000 of Racal's transaction telephones to its initial March order of 300. A prime motivator is the £12 million a year loss through fraud that the credit card companies make currently.

US govt clamp clears three in IBM secrets case

by Kevan Pearson
and Howard Karten
A US judge last week dismissed charges against three men in the IBM secrets case because of a refusal by the government to reveal the exact relationship between IBM and the FBI.

In a separate hearing, a different judge dismissed a request by Hitachi for government documents relating to the case which it says it needs for its defence.

Following these decisions a hearing must now be set up to establish what information is relevant to the case. The government argues that it has nothing to hide and will comply with the findings of the hearing.

The defence claims that the relationship between IBM and the FBI, which conducted the investigation, is central to the defence.

Judge Robert Aguilar dismissed charges against Raymond Call, ex-IBM engineer Barry Safaie, a former National Advanced Systems manager, and Tom Ibasson Ayazi "with prejudice".

This means that the US government cannot renege the charges unless Aguilar's decision is reversed in the US Court of Appeal.

Aguilar ruled that the government was required to turn over to the court all documents it had relating to the case in the interests of justice and "due process".

The government argued that the defence's request for information amounted to a "fishing expedition".

Meanwhile, Judge Spencer Williams quashed subpoenas issued by Hitachi's lawyers for government documents about IBM and its relationship with the consulting firm used in the arrest operation.

■ Leader page 13.



KAWATANI... Japanese workers more dedicated than Americans.

Japan set for next market attack

by Philip Hunter
WHILE the fifth generation of computers remains in embryo, Japan is about to make an immediate effort to seize more of the world's information technology market.

According to Mackintosh International consultancy, the authoritative electronics industry forecaster, this attack will be based on rapid development of custom-made integrated circuits, known as logic arrays.

Main-line integrated circuit makers will decline, says Mackintosh, with the trend being towards electronics companies frying their own chips, or at any rate having

their custom-made. The big Japanese companies are already heavily committed to logic arrays, says Mackintosh.

This opinion was backed by Fujitsu director Yukimaru Kawatani in London last week, when he predicted enormous growth in Japan's semiconductor production.

Speaking at the Pergamon Info-tech Fifth Generation Conference, he said that the dedication of Japanese workers was responsible for the supremacy of its semiconductor industry.

"We have not seen similar feedback from American employees at

our semiconductor facilities in the US," he added.

Kawatani claimed that new features on the Fujitsu mainframe, the Facom M-382, made it the fastest general-purpose mainframe in the world. "That is a result of the manufacturing technology and reliability of semiconductors," he said.

Kawatani described a new kind of semiconductor discovered by Fujitsu, called HEMT, High Electron Mobility Transistor. HEMT has a comparable performance to the better known, but as yet unperfected Josephson Junction technology.

IT82 'moral victory'

by John Kavanagh
INFORMATION Technology Year staff won a moral victory in last week's debate on a motion saying it failed to encourage an ergonomic approach to its subject. The challenge to the debate came from the Ergonomics Society and the two sides met on the society's home ground, the Ergonomics Unit at London's University College.

LINE NOISE

HONEYWELL, never far behind IBM in announcing large mainframes, will next week launch its new range code-named Orion, which the company says far exceeds the power and capacity of its largest existing systems. Honeywell regards this as one of the most important product launches in its history.

IBM has run into further difficulties with its own employees in Japan in the wake of the Yapsan case. The president of the company there, A. M. Shima, is reported to have flown to the US in a rage to ask his erstwhile employers what they were doing. He was neither consulted nor informed on the moves in the US and was unable to comment when approached by the Japanese Prime Minister, who less than politely demanded an explanation for IBM's actions. Shima is still with IBM, but as one Japanese put it, minus much face. And on things Japanese, Hitachi is rumoured to be launching a huge drive on the micro market led by a television advertising campaign not dissimilar to the one IBM is currently running with Peter Ustinov in the starring role.

RUMOURS that a £6 million project to develop an Ada Programming Support Environment (Ape) will be announced in a week's time by the Ministry of Defence, the Department of Industry and British Telecom are largely spurious. A source at one of the four companies chosen to co-operate on the Ape project - SPL, SDL, Software Sciences and ICL - says that a major project will indeed be announced soon. But we will not hear about it for at least a month, and it will involve considerably more than £6 million, which would be far from adequate, the source said.

NAS adds 3 models

by Kevan Pearson
NATIONAL Advanced Systems has added three new processors to its 9000 series of large-scale IBM compatible machines. The three processors overlap IBM's 3083 and 3081 ranges.

The first two models, the AS9040 and the AS9050, compete with IBM's 3083B and J models, at the top end of the range.

The AS9070, a tightly coupled dual processor system, is targeted to compete with IBM's 3081K. They replace the top end of the AS7000 series.

The company has also announced a new mid-range series, the 6630 and 6650 machines. These are aimed at the level above IBM's 4341 processors and offer a

performance improvement of about 50% over the 4341 Group 2, the most powerful machine in the 4300 range, according to John Clements, NAS European vice-president.

First deliveries of the machines will be phased over the next six to nine months' approximately in time with the first shipments of IBM's 3083 range.

NAS will support IBM's new operating regime, MVS/XA, on its 9000 series, including the new smaller machines. The company says it will deliver its MVS/XA support feature in the first quarter of 1984, 12 months after IBM begins normal shipment of MVS/XA.

Computer financing
Standbrook House, 2-5 Old Bond Street London W1X 3TB

AVAILABLE
3083 J 24
AUGUST 1983

TELEPHONE: 01 499 2388 TELEX: 8954724

TERMINAL CHOICE

HYTERM 630 KSR

40 cps letter quality keyboard printer: 'absolute' tabs, variable line/character spacing, interchangeable daisy wheels, graphics capability.

£1925

RAIR 01-836 692
6-9 Upper St. Martin's Lane London WC2H 9EQ

NEWBRAIN FROM
Grundy Business Systems
SOMERSET ROAD
TEDDINGTON, MIDDLESEX TW11 8TD
Registered Office
Tel: 01-877 1717/8
(Telex: 928728)

Inmos crisis as govt says: No more cash

by Kevin Cahill
INMOS, the State-funded chip maker, is facing a major financial crisis following a government refusal to find any more funds for the company.

Speaking to a Conservative Computer Forum at the Party's Brighton conference last week, Industry Minister Patrick Jenkin said, "Inmos has had £100 million of taxpayers' money, and no more is coming."

Inmos had accumulated start-up losses of £21.3 million to the end of last year, and expects to report further losses for the current financial year. It is understood to be asking for an additional £10 million from the government to pay for next year's operations.

Last year the company, which has chip making plants in Colorado and Newport, Gwent, reported total turnover of £2.1 million and expects turnover of £10 million in the current year.

A few weeks ago Inmos announced that the company was deferring a ramp-up of its operations in Gwent, to what were referred to

as "next year's planned levels of production."

Commentators saw this as an attempt by the company to force the government to confirm further financial aid for Inmos.

The plan appears to have backfired, and Jenkin followed his "No more money" statement by remarks which bode ill for Inmos.

He said, "Inmos must go private." The company has already tried to do this in various ways, in the US last year and in the UK earlier this year. In both cases adequate private offers were not forthcoming.

The City in particular has looked sceptically at the estimates of funds needed, and some sources say that the £10 million requested is 300% short of what will be needed "unless there is an unforeseen turnaround in Inmos volume and an earlier than anticipated move into profit."

According to Jenkin, ICL and Sinclair had been to see him, and told him that "We must have a chip industry."

IBM Olympia range to make December debut?

by Kevan Pearson
IBM is expected to plug the gap between its low-end 308X and 4300 series machines soon, according to industry sources. Observers believe that IBM will announce a new range, code-named Olympia, in 1983, but the first machine could be announced as early as December 1982.

The first machine will be rated at 2.5 mips, neatly filling the gap between the 4341 model 2 at about 1.5 million instructions per second and the 3083B at 4 mips.

The machine will probably support Extended Architecture; the 4300 series does not.

The timing of the announcement will depend on whether IBM perceives a need for the machine in terms of the offering of its competitors, and the likely impact on the 4341, which is still selling well.

The main competition at the moment comes from National Advanced Systems 6100 and 6600 series machines, both announced this year and which extend beyond the power of the 4300. But the extent to which this influences IBM's launch decision will depend on how well these machines sell.

IBM bases most of its decisions on the US market, says Richard Imershiel, a vice-president of the US Gartner Group research agency. "NAS has been stronger

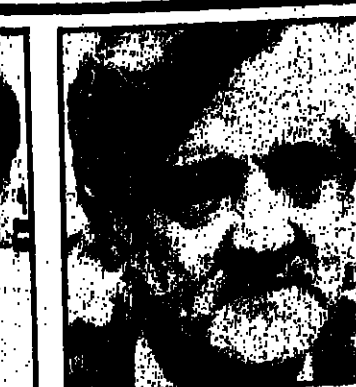
in Europe than in the US," says Imershiel, "and a lot of whether IBM announces a new machine will depend on how rival machines sell."

The Olympia series is likely to extend up to 4 mips, putting it into direct competition with the 3083E. But it is likely that the new series will offer a lower price performance ratio than the 3083 machines, which poses questions for the future of the more expensive alternative.

The 3083E is not scheduled for delivery until 1984, and IBM could be delivering Olympia series machines shortly afterwards, at a much lower price.



Smoothering the flow of London's ale...



Osborne jumps into the Cardbox...



Harrison cool to merger ideas...



JENKIN... "No more money is coming."

Alvey report calls for commercial exploiting of ideas

by Kevan Pearson
PUBLICATION of the Alvey Committee report has dispelled fears of a field-day for academics and that there would be little potential for commercial exploitation. But the debate has now switched to whether the government will ignore Alvey's recommendation for a substantial investment in "advanced information technology."

The committee called for sweeping changes in the way the UK computer and IT industries are run, with £350 million, up to

of the leading industry companies. Even before the report appeared, some UK companies - particularly in the software field - did not think it would go far enough. But there are already signs in Whitehall that the project might not go even as far as the Committee recommends.

The call for up to £250 million of taxpayers' money is bound to cause a controversy.

The government, as told by Industry Secretary Patrick Jenkin at the Conservative Party conference last week, is also to stop any more money going to Inmos, the British Technology Group's chip manufacturer (see story this page). This

■ Turn to page 4.

BIS sells control to City investors

by Kevin Cahill
BUSINESS Intelligence Services, the London-based software consultancy and training group, has sold 56% of the company to private City investors for £5.7 million.

The move, which has been the subject of speculation for some time, will reduce staff and overseas investor participation in BIS from 100% to 44%.

The institutions which have bought the controlling shares in BIS are some of the most prestigious in the City and include merchant banks Baring Brothers, Schroder Wagg and Charterhouse Japhet and the C&A pension fund.

According to BIS chairman Brian Allison, the former investors will receive a reasonable return on their original investment and for their support of the company over the past 12 years.

BIS managing director Roger Graham says the company expects turnover of £20 million this year and profits of about 10% of sales.



GRAHAM... Expects turnover of £20m this year.

RAPPORT

The proven Relational Database System for VAX and PRIME

and over 28 other mainframe and mini computers.

Also MICRO RAPPORT is available for micro computers.

RAPPORT is the proven system because -

- it is used at more than 120 installations worldwide
- it has been used commercially for three years
- it is used for both small and large databases
- it is used in business, industry government and research
- applications include computer aided design, stock control, time sheet analysis, financial management, project management, personnel administration, literary referencing, scientific data analysis and many more.

RAPPORT can be used by Fortran, Cobol or Coral application programs or by using its own powerful Interactive Query Language for report formatting, data acceptance and update, and answering ad hoc queries.

RAPPORT gives the power of traditional database systems with the benefits of the new Relational approach to data management - an essential aid to application development.

For more information or a demonstration please contact:
Francis Bott:
Database Products Group
Logica Limited, 84 Newman Street
London W1A 4SE
Telephone 01-637 9111

See us at Stand 113, Software Expo, 8-10 Nov.

Micro News.....	7
Company News.....	10
Software File.....	11
Profile, Platform.....	12
Downside, Liveware.....	12
Leader, Letters.....	13
Workplace.....	14
People, Diary.....	16
Electronic Banking.....	18
Industrial Development.....	19/22
Products.....	23
Books.....	24
Marketplace.....	26/27
Middle East jobs.....	44
Sales Bit.....	55
Top Jobs.....	32
Job Vacancies.....	28/55



BROAD... Call for government to curb US and Japanese micro imports.

Comart takes on IBM in 16-bit CP/M micros

by Kevan Pearson
A BRITISH microcomputer manufacturer has jumped on the IBM micro bandwagon with a 16-bit microcomputer based on Intel's 8086 device and supporting CP/M 86 and Microsoft DOS operating systems.

Comart's new CP 1000 Communicator range complements its existing eight-bit Communicator range, and represents a significant step for the company into what many see as the fastest growing sector of the micro market.

But Comart's managing director, David Broad, also chairman of the British Microcomputer Manufacturers Group, warned there was increasing interest among group members for a call on the government to curb imports from American and Japanese micro manufacturers who dominate the market in Europe.

No decision had yet been taken, said Broad, but most members favoured such a move.

Comart had sales of about £6 million last year, and plans to increase this to £40 million over three years.

Growth in optical fibres for LANs

by Donald Kennett

LOCAL area networks will increasingly be based on optical fibres, with short distance applications creating a market that will be worth £2.5 million this year and £13.5 million a year by 1987 in the UK alone, according to BRA Technology of Leatherhead.

Growth could be much higher than this but for the lack of a low-cost means of regenerating signals and coupling to electronic equipment, the company says, and even in 1987 it will be in the early stages of acceleration.

Launching his company's five-volume, £1,800 report, project leader Peter Baker said: "There is much awareness of fibre optic technology but little practical knowledge. Long-range applications have been well reported, particularly by British Telecom, but short-range fibre optic systems are

now established in the UK in business communications and process control."

The most common application for optical fibre links was for connecting VDUs to computers, he said. Optical fibre was already cheaper than copper for shared links, particularly instead of multi-wire screened twisted-pair cables, but it was also used to save space in crowded ducts and to protect against tapping and electrical interference.

Local area networks would increasingly be based on optical fibre and two major computer companies, one in the UK and one in the US, would introduce optical based LANs by 1984. Codenol in the US had developed a star network based on optical fibre that used contention to share channel capacity between attached devices and which was designed to com-

pete with Xerox's Ethernet in the office systems market.

The first integrated circuits for optical fibre communication were becoming available and they already handled signal processing and bit error rate detection on the same chip as the emitter and detector. In future they would provide the basis for do-it-yourself systems.

Both supply and complexity of the chips were likely to increase and the current profusion of systems houses developing board-level products would decrease. As standards appeared which made system components interchangeable, optical fibre systems would gain a bigger share of the market.

There was a wide range of potential applications based on specialised transducers and sensors, which would all help to bring down costs.

R&D urgent for survival of Britain's IT industry

by Kevan Pearson

BRITAIN'S information technology industry could die on its feet in the face of substantial competition from US and Japanese companies, unless a comprehensive, industry-wide research and development programme is started soon.

This warning comes in the report of the Alvey Committee, published last week, which suggests how the UK should answer the Japanese fifth generation project and other national based research projects currently being devised.

The committee called for a £350 million, five-year "Advanced Information Technology" programme, up to 75% funded from taxpayers' money.

The recommendations concentrate on four major aspects of information technology which the committee believes will enable British companies to compete in world markets. They are: software engineering; very large scale integration; man-machine interfaces; and intelligent knowledge-based systems.

The report recommends that the project should start in April 1983, and that it should be limited principally to UK companies. "Foreign multinationals should participate only where they can contribute a particular asset vital to the programme; where the results of their involvement will be available to the benefit of the UK industry as a whole; and where it is guaranteed that valuable technical information will not leak from the UK," it says.

The programme is necessary, the report argues, because rival programmes "present a serious challenge to the UK", and because, based on present trends, the UK share of the world information technology market will decline without it.

The high level of government involvement and taxpayer funding are needed to ensure the widest possible exploitation of the de-

Summary of the recommendations

■ The programme should cover basic research and development in software engineering, VLSI, computer ergonomics and artificial intelligence and knowledge-based systems.

■ Computer science education should be expanded to meet the manpower needs of the project.

■ The government should provide upwards of two-thirds of the total project funding.

■ Property rights to ideas generated by the project should have the widest possible availability.

■ The programme should be viewed as lasting between five and 10 years.

■ The programme should go live in April 1983.



ALVEY... Call for £350m.

velopments coming out of the project. "It is vital that there should be maximum access to the programme and that its results are made as widely available as possible, in order to raise our overall IT capability. If the government does not contribute the lion's share, then companies which have provided funds will under-

standably insist on sole rights (to the developments produced by the project)," the report states.

The programme calls for radical changes in the way industry operates, and for a change in the way academic research is organised and used.

The £350 million should not cut into existing IT initiatives, but should complement them. The report asks that projects like MAP and other Department of Industry schemes be extended to provide support and inputs for the Advanced Information Technology programme.

The report also notes that a high level of skilled and trained people will be necessary for the programme, and that such people are not available in sufficient numbers at the moment to make the programme a success.

It estimates that about 1,000 people will need to be directly involved in the project and that only about half of these are currently working on areas of direct relevance to the programme. Some of the shortfall will be made up by redeployment, but the remainder will have to be trained.

The report is critical of the cutbacks in higher education, particularly since these have tended to fall more heavily on universities and colleges concerned with technology, such as Salford, Aston in Birmingham, and Bradford. "The result is that many have left the UK to pursue their research overseas. And of these who remain an increasing number are now doing research for foreign industry," the report claims.

Action on education "must start in the schools", and "it is no good just providing schools with microcomputers. This will merely produce a generation of poor Basic programmers."

Universities need to provide more courses on computer science, and fewer on the "basic" aspects of computers and computer programming.

Call for commercial exploitation

■ From front page.

cannot bode well for the Alvey recommendations of a significant investment in developing Very Large Scale Integration as one of the key "enabling technologies" of the advanced information technology programme.

Alvey called for the money in the new project to be additional to

any existing efforts, which would provide support for the Alvey programme. But it seems likely that the government will repeat its performance on funding the Microprocessor Awareness Project (MAP) for which some £80 million was diverted from the Department of Industry.

The other area which is likely to run into problems is the call for

more academic work, and especially more computer science graduates. Both the BCS and Robb Wilmut, ICL's managing director, have urged the government for the education cutbacks which have affected technological universities and colleges.

The Committee is keen to get the project off the ground and has called for an April 1983 start.

SALES BRIEF

Unilever to install IBM 3083

ONE of the first IBM 3083 processors to be installed in the UK is going to Unilever Computer Services' Working site in November.

The system, a Model B console, is based on IBM's thermal conduction module technology, which is designed to improve the efficiency of interconnection layouts, cooling and power distribution.

First sale

THE first major order for Zilog's recently launched System 800 range of 16-bit microcomputers has come from Sharnbrook Computing Services, the London-based financial systems subsidiary of architects Sir William Halcrow & Partners. SCS has ordered 30 System 800 Model 1s on which to base turnkey systems using its management reporting and control software.

The deal means a second US stamp of approval for Cardbox; it was recently chosen by Xerox for sale through its US business equipment shops.

The product is also sold in the

US by Software Distributors and in Australia by Imaginering.

£100,000 training

NATIONAL Computing Centre has won a £100,000 contract to train 11 students from Abu Dhabi in systems analysis, programming, technical English and a selection of specialised computing subjects. The contract was placed by the Ministry of the Interior.

DEC-IBM link

SHELL Research has ordered two Brown's Box Model 3299 terminal controllers from Blackheath-based Brown's Operating Systems Services. The controllers will enable researchers at Shell's Bioscience Laboratory in Sittingbourne to use a synchronous link to an IBM 4341 from their asynchronous Digital Equipment VT100 VDUs, and to switch between the 4341 and the DEC, Prime and Hewlett-Packard minis they are currently connected to.

MoD contract

SYSTEMS Designers has won a £100,000 contract from the Ministry of Defence to design a specialised military system based on eight RM3000 ruggedised 16-bit microcomputers made by SDL's associate company System Production. This is the first order for a system to incorporate the RM3000, which was upgraded from an earlier eight-bit design by using the Intel 8086 processor chip.

Traffic control

CHISWICK-based Chernikoff Telecommunications has made its first sale through British Telecom, with which it recently signed a marketing agreement. The customer, metal commodities broker Erlanger, has bought one of Chernikoff's UK-made Aures 1600 message switches to handle traffic on four telex lines and one telegraph line, and will rely messages between its US and European offices.

Credit system

THE UK's largest credit information service, UAPT (United Association for the Protection of Credit), has ordered a Rediffusion R2800 Corporate Videotex System for use with its two mainframes in servicing 15 million subscribers a year from its 10,000 subscribers about county court debt judgments, bankruptcies and credit records.

Missile mini

THE FIRST UK order for the recently announced Gould SGL 32/8750 parallel processing supermini has come from British Aerospace Dynamics, which will use it for missile simulation.

MoD contract

SCICON has won a £100,000 contract from the Ministry of Defence to simulate and analyse various aspects of ship ship-

Osborne jumps into Cardbox

by John Kavanagh

A UK software marketing company is preparing for the big time following an international trading agreement with the microcomputer manufacturer Osborne Computer.

On its first birthday Caxton Software Publishing revealed that its Cardbox electronic card index package, which it markets on behalf of the developer, consultancy Business Simulations, would be sold by Osborne worldwide with its computers.

The deal means a second US stamp of approval for Cardbox; it was recently chosen by Xerox for sale through its US business equipment shops.

The product is also sold in the

US by Software Distributors and in Australia by Imaginering.

"This agreement is in some ways better than a big order because it will give us massive exposure worldwide," said Bill Barrow, one of Caxton's three founder directors. "Osborne says it will sell between 8,000 and 12,000 copies next year but that's a conservative estimate. Cardbox already sells very well through Osborne's UK dealers. Certainly 1983 will be a big year for us."

Barrow said 1,000 copies of Cardbox had been sold in its first four months, which was a good record for a new product in such a competitive market.

"It has all the makings of a best-seller," he said.

'Japan will lead in world electronics'

by John Kavanagh

THE Japanese invasion of the worldwide electronics markets will take off during the Eighties and Japan will dominate in areas ranging from teletext and facsimile to process control.

At the same time, governments across the world will realise that a major social revolution is being demanded by electronics, and new work and leisure patterns will emerge.

These conclusions are reached by Dr Ian Mackintosh, chairman of the research firm Mackintosh Consultants, in the company's 1983 yearbook on the electronics market.

Mackintosh research shows the Eighties will see "phenomenal" growth in semi-custom integrated circuits, basic chips which equipment manufacturers customise to their own needs.

The leading Japanese electronics companies are moving into the chip array part of the semi-custom chip business with great speed and determination, says Mackintosh. They will capture a big part of the world market and be well placed to take a leading role in the use of them.

Mackintosh concludes from these facts that Japanese companies will make an "enormous effort" to capture world markets for most business and industrial equipment based on electronics.

"They will systematically emulate their success in consumer electronics and semiconductor

memory to the point where they will capture a majority of the world's free markets for many types of equipment," he says.

Mackintosh disagrees with the view that Japan's advance will be hit by a lack of software expertise. And he sees no immediate shortage of programmers. It will be software quality, not quantity, which will be the problem worldwide, he says.

Meanwhile Mackintosh sees the Eighties bringing the demise of companies specialising solely in integrated circuits. He points to the recent "tidal wave" of takeovers of chip manufacturers by equipment manufacturers.

And only the very biggest companies will be able to stay in the high-volume silicon wafer manufacturing business, because of the price of the equipment and the cost of designing complex chips.

Mackintosh says electronics will encroach on all areas of human activity, from manufacturing to shopping, law, medicine and leisure. Governments will "eventually" see that a major social revolution is under way. New work patterns will arise because of the "irresistible" productivity increases and laws and social customs will start the long process of adjustment to the eventual age of leisure.

* Mackintosh Yearbook of World Electronics Electronics Year 1983, 210 pages, £150. Benn Electronics Publications, PO Box 28, Luton LU1 2NT.

VSAM users get new data storage tool

by Philip Hunter

USERS of IBM's complex virtual storage access method (VSAM) files of data are kept in clusters, details of which along with a list of available space for further storage, are kept in the catalogue.

The problem is that the method has not yet been perfected, and is prone to error. "When this happens, the user can have enormous problems recovering data," says Westinghouse sales manager Chris Warren.

Faver is an attempt to help users overcome these problems by searching for logic errors in VSAM databases and printing out details, equivalents, running the VSAM operating system.

VSAM is a powerful data storage method allowing users to access in several ways including

sequential access, index access, and access through a catalogue. Files of data are kept in clusters, details of which along with a list of available space for further storage, are kept in the catalogue.

The problem is that the method has not yet been perfected, and is prone to error. "When this happens, the user can have enormous problems recovering data," says Westinghouse sales manager Chris Warren.

Faver is an attempt to help users overcome these problems by searching for logic errors in VSAM databases and printing out details, equivalents, running the VSAM operating system.

VSAM is a powerful data storage method allowing users to access in several ways including



BARROW... "All the makings of a best-seller."

Cardbox accounts for 80% of Caxton's sales. In the UK it is sold through 100 dealers. Caxton's other main product is Optimiser

from Digirus, a linear programming package. The company is about to launch a CIS Cobol development aid,

Sourcewriter, from a UK software firm, Softwrite. Caxton's aim is to sell high-quality UK software, mainly overseas.

HP ad is inaccurate, says Apple

by Kevan Pearson

HEWLETT-PACKARD has run into trouble over comparisons made in one of its national newspaper advertisements. Apple (UK) has complained to the Advertising Standards Association about the advertisement, and the ASA is investigating.

Apple claims that the advertisement has inaccurate facts about the Apple III micro, which is compared with Hewlett-Packard's HP87.

A spokesman for Apple said the company disputed three points made in the advertisement: that the Apple III has no programmable keys - Apple says it does; that it does not have a built-in disc operating system - Apple denies this; and that it has no self diagnostics - Apple claims that the machine has a comprehensive self-diagnostics and problem display system.

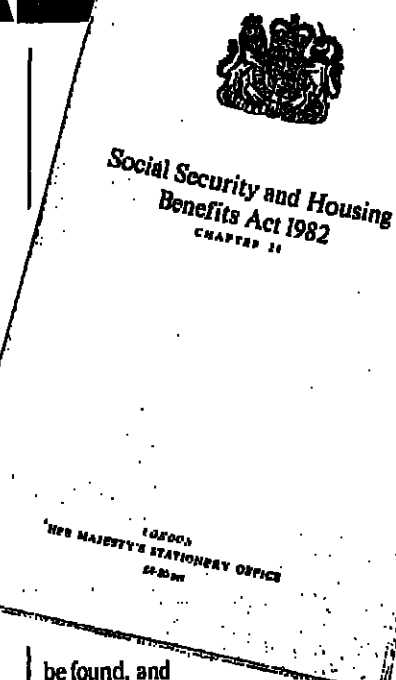
A spokesman for Hewlett-Packard said: "The HP87 has been superseded and the advertisement has been shelved never to come out again."

IT'S ENOUGH TO MAKE YOU SICK

The Social Security and Housing Benefits Act is now law. And it's enough to make any DPM feel weak at the knees.

Because the new Act includes the now notorious Statutory Sick Pay legislation, presenting companies with massive administration and systems problems. And somewhere along the line, the DP department is going to be called upon to come up with the answers.

The way the new legislation works is that when an employee becomes ill, he



fee of £30.00 a copy.

And secondly, there's practical help. Our SSP guide will help your payroll managers identify and understand the problems the new Act will present. Unipay will provide the solution to those problems.

Unipay is one of a range of unique software packages from Peterborough Software. It will enable your payroll department to efficiently handle the complexities of the new legislation, and at the same time provide a complete payroll system. And as Unipay is user controlled, DP involvement in actually operating the system is minimised.

The new Act is going to make a lot of people sick; look after yourself now by telephoning Jane Lewis on (0733) 41010, or by completing the coupon, and sending it to Peterborough Software, Borough House, Newark Road, Peterborough, PE1 5YJ.

must, after three days, "self-certify" his illness by completing a rather complex form. This is then passed to the employer, who is obliged to provide sick pay at the appropriate rate for up to eight weeks.

The employer then claims a refund of sick pay against his monthly National Insurance and tax payments. All of which may sound nice and simple, but of course isn't. In fact the administration and systems implications are so alarming that some companies are actually considering not even bothering to claim their refunds simply because the additional staff and management costs would make it uneconomical.

Not many companies can realistically afford such an expensive philosophical point of view. Answers to the problem must

be found, and as the problem revolves around the rapid handling of large amounts of detailed information, guess where the pressure is going to fall?

You've got it; the DP department. Which is probably the last thing you need. However, pause before you reach for the medicine cabinet; help is at hand from Peterborough Software.

Firstly, in the shape of a comprehensive study, 'SSP: an introduction and guide to Statutory Sick Pay from Peterborough Software'. Designed for payroll managers, the guide examines and analyses the workings of the new Act, and its impact on payroll management. Complete with explanatory charts and diagrams, the SSP guide provides a complete source of vital management information, and is available from Peterborough Software at a

Please send me _____ copies of 'SSP: an introduction and guide to Statutory Sick Pay from Peterborough Software'. I enclose a cheque for £ _____ (£30.00 per copy) payable to Peterborough Software (UK) Ltd.

☐ Please send me more information on Unipay
☐ Please telephone me to make an appointment to discuss Unipay

Name _____
Position _____
Company _____
Address _____
Telephone _____
Computer type _____

PETERBOROUGH SOFTWARE

Our software makes sense of your hardware.

COMPUTER TIME FOR SALE NOW!

MACHINE HIRE FROM ONLY £20 PER HOUR AVAILABLE

with discount rates available anytime for advance and scheduled bookings

Equipment

DATA GENERAL NOVA 4X (256KB memory)
20MB Gemini (6070) disk drive
800/1600 BPI magnetic tape drive
2 x 1.28 MB dual density floppy
3 x 6053 Dasher terminals
ULM5 and foreground, background consoles running under RDOS operating system

System software supports
RDOS Fortran IV
Operator/system support available if required

Contact Reading (0734) 689414

- Sales Department



C E Automation Limited

Unit 15, Suttons Industrial Park,
London Road, Ebury, Reading, Berks RG6 1AZ.
Telephone: 0734 689414 Telex: 849286 (CAVAC G)



Reid (left) and Bennett... VDU filter works on the same principle as Polaroid sunglasses.

Polaroid takes leaf from its own book with VDU filter

by Philip Hunter

EYE STRAIN and migraine caused by glare from video terminals could be greatly reduced with a new filter that works on the same principle as Polaroid sun glasses. Called the CP-70 Contrast Enhancement Filter, it is made by Polaroid and will be marketed in Europe by Northampton-based Cave Tab.

The filter fits on to the front of VDUs and comes in 24 standard sizes, and costs from £98, and about £125 for a typical screen. But the price is reduced by up to 30% for bulk buyers.

Stewart Bennett, managing

director of Polaroid's polarising division, claims that experiments prove that the expense is worth incurring. Alternative methods of reducing glare are cheaper, but cut out the contrast between the character displays and the rest of the screen, he says.

The cheapest method, apart from simply turning out all lights, is the nylon mesh, which fits straight in front of the screen. "This is cheap, but causes a severe loss of sharpness," says Bennett.

Users can go up-market from this and employ anti-reflection coated glass. This is better according to Bennett, but does not cut out as much glare as the CP-70.

Another method is to have an etched plate bonded on to the VDU tube to reduce glare. Polaroid eventually intends to bond the CP-70 on to the VDU screen itself. But this will take several years, says Bennett, because it is technically difficult and needs the co-operation of VDU makers.

However, Bennett says that Polaroid is willing to supply VDU makers as OEMs.

Cave Tab is the first outside distributor to be appointed by Polaroid, which has its own European operation for other products like cameras and sun glasses. There are about a million VDUs in Europe.

DB machines 'will get more popular'

by Donald Kennett

SPECIALISED database machines have failed to take off so far because they are thought to be of little use to businesses, according to a US expert.

Speaking at the Pergamon-Info-Tech Database Week seminar in London last week, Dr Paula Hawthorn of Lawrence Berkeley Laboratory said that most business applications were transaction oriented, involving simple retrievals needing little data manipulation.

But they have a high overhead in access control and validity checking outside the database. In contrast, the development of database machines had concentrated on operations such as searching and matching within the database, she added.

"Business is what is going to pay for these machines," Hawthorn said, "but they will get more popular as people realise how much of their processing is bibliographic or statistical as well as transactional. They will also become commercially viable as costs come down."

Bibliographic applications she defined as being search intensive and involving long strings of data held on many discs. Telephone directories were included in these.

Statistical ones involved making correlations over very large data sets. They included management information systems and reporting systems.

The only performance criteria available were very rough rules of thumb, such as effective instruction speed or MIPS rating (millions of instructions per second) and effective input/output rate.

People often thought that speed was proportional to the number of processors working in parallel in the system, she added, but this was not so because of the overhead in the controlling processor.

The key was whether the processors were organised so that applications could exploit the multiple processing capability. Also, no matter how good the architecture the software could still render it useless.

The only way to be assured of the desired performance was to benchmark the system with application-related tests. "Everybody knows not to trust the vendors' literature any more," she said.

Disc access speed was the primary factor limiting performance. Even systems using multi-ported disc drives, such as ICL's original CAPS design, featured similar seek times to conventional hardware, although CAPS was very fast on searching long strings.

However, the use of multiple processors to solve performance problems was still the driving force behind system design and many designers took future dramatic improvements in storage media access times for granted.

Disc-based systems were best for bibliographic or searching applications, while cache-based systems were best for statistical or correlating ones. But the cache had to hold a substantial proportion of the whole database or else it would be defeated by swapping in and out in some types of access.

The relational database model was the one for the future, Hawthorn said, because it promised greatly increased productivity for users. It facilitated high-level que-

ries such as "get me the salary of everyone who works for Jones" in data independence meant the database could be shared across several machines, and its regular data structure was easy to handle.

Many companies could not give up their present systems, but in five to 10 years there would be many more relational systems, she said.



HAWTHORN... "Rule of thumb are the only performance criteria."

More jobs lost due to hi-tech

by Kevin Pearson

THE number of new technology agreements between unions and employers is increasing, according to a survey by the Labour Research Department. But the number of jobs lost as a result of the introduction of new technology is also going up.

Less than one-third of the 225 agreements covered by the survey give guarantees of no job losses or redundancies. And in 42 of the 127 offices in the survey, which included top commercial and public sector employers, jobs were lost as a direct result of new technology.

The survey also shows that in two-thirds of the cases studied, consultations between unions and management took place before new technology was introduced.

The report suggests that workers are generally taking a positive attitude towards changes in the work environment - 83% of those questioned did not feel that their jobs had been deskilled, and more than a half said the jobs had been enhanced.

However, in most cases any improvement in pay or other work conditions was limited to those directly affected, principally the operators of new technology.

Those who operated the new equipment gained higher earnings in one-third of the cases. But in only eight cases did new technology agreements lead to shorter working hours. Most of the job losses took place in companies where there was a large clerical operation. The majority of new technology agreements have been signed with white collar workers.

*Survey of New Technology - Bargaining Report No. 25, Labour Research Department, 78 Blackfriars Road, London SE1 8NP. £6 (52 to trade unions and educational bodies).

Elbit offers know-how to UK

by John Kavanagh

ISRAELI military computing know-how is on offer to UK companies from Elbit, Israel's computer manufacturer. Its UK subsidiary, Elbit Data Systems, is moving to a systems house sales approach and is considering collaboration with UK software and hardware firms.

With this new string to its bow the company is aiming at a UK turnover of over £10 million in five years.

"We are offering the resources of the entire Elbit company," said UK managing director Yossi Barath. "We can design and manufacture hardware and software in Israel. Or we can work with UK companies, offering them the development or installation work."

"We have a relationship with two UK software houses and we are looking for more software and hardware specialists who would like to join us. We can offer long experience of military systems - and the Israeli army is a very good testing ground."

He added: "Many UK companies would like to get this know-how, not only for defence contracts but for command and control and communications systems."

Barath said he was restructuring the UK company. Nine of the 15 staff were now working on systems. Elbit was expanding the UK subsidiary and setting up in the US, he said. The company is also operating in France and West Germany.

Under its new systems house banner Elbit has won a contract to put together a data collection system to help with the compilation of Gallup Poll's top 100 pop records and tapes. The top 100 chart is used by the BBC and Music Week magazine.

The system, which replaces manual methods, involves tape-based data capture devices in 300 record shops. At the end of the day, an Elbit Keypact minicomputer calls each machine to get its sales data, then passes it to Gallup's IBM 4331 computer, which

compiles the chart.

■ Robert Parry adds: To boost UK sales across the full range of products - from minicomputers to mainframe systems - Elbit is going all out to attract distributors and dealers to take advantage of this hardware and software support and service network.

Elbit is offering dealers a five-year credit line at 10% interest a year. "We don't want their money now," says Barath, "though we do expect it in five years' time."

Barath hopes to sign up between five and seven distributors to cover the UK, with as many dealers as he can get. "All the dealer has to do is be able to sell. We give all the hardware and support."

Prospective dealers are asked two simple questions (apart from which territory they cover): "Can you forecast a minimum of £150,000 of orders over the next 18 months?" and "Can you undertake a firm order for £30,000?"

"If they answer yes to both," says Barath, "they will be eligible for the total Elbit support."



BARATH... Restructuring.

Honeywell DPS6 minis get dual processors

by Philip Hunter

HONEYWELL is consolidating on its DPS6 range of minicomputers by introducing a dual processor version for resilience, as well as more commercial processing software. A database query system that the company says "will allow users having to write their own programs" will be launched early in 1983.

This will operate on databases set up under Honeywell's TP56 transaction processing system, which was developed by the company's UK division on the Level 6 minicomputer range. The DPS6 minicomputer range, Level 6, in 1981, and both are compatible.

Until recently, TP56 was restricted to larger DPS6 models, but it will now run on any machine in the range following an increase in memory. Honeywell is developing a microcomputer that will be compatible with DPS6, and expect eventually to have the transaction system working on that as well.

Honeywell has been quietly introducing resilience to the UK over the last few months, and expects it to be adopted worldwide. Resilience is achieved by linking two DPS6 processors by a fast connector. One of the processors acts as a tracker, duplicating CPU and database operations of the other, and taking over when it fails.

Such a system guards against disc, CPU or memory failures, and Honeywell claims it can go down and recover from power failure. One attraction of the system is that it can easily be upgraded to a dual-processor system, a dual-processor system having already been

for a mainframe. Les Echols reports that 75,000 sites are now equipped with 34,000 machines and 38,000 microcomputers which are installed outside data processing departments. Some 70% are very small systems and under 25% are medium-sized.

IBM's dominant position is confirmed by all firms except those with four employees or fewer where Olivetti, Logabax and CIL-Honeywell are making the running. The American giant controls 10% of computers in firms of up to four employees, 30% for those between 50 and 100, and 90% for those of above 1,000.

CIL-HB equips 13% of firms between 20 and 99 staff and 53% of those with over 1,000.

MICRO NEWS



ALLISON... Can deliver up to 10,000 units a year.

180 outlets planned for UK machine

BRITISH micro builder Io Technology is gearing up for a big push on its Iona microcomputer. Over the next six months it hopes to expand to 180 outlets for the machine, from its present base of 21 outlets through 15 dealers, by finding the elusive "upper echelon" dealers every other manufacturer seems to be chasing.

"We are looking to sign on another five in the next fortnight," says sales manager Nigel Tompkins. "Fifty people have applied, and we are busy vetting them. We ask a lot of our dealers, because we give them a lot."

The Iona machine made its debut around Compex time last year, but things did not really start moving until the company went public, raising £500,000 in April. Since then about 80 Ionas have found their way into the marketplace, though Tompkins is wary of estimating how many are with end users yet.

The Iona microcomputer was designed and built by Iotec in the UK, though peripherals like floppy drives and monitor are badge-engineered products from other manufacturers, boxed to match the main Iona unit. "It uses mature technology," says Tompkins - the standard Z80 microprocessor, 64K of RAM and the CP/M operating system - "but we felt there was a need for a properly designed and developed British microcomputer."

It has a multiplicity of microprocessors, a central Z80A with a further processor for each peripheral, giving the machine a true 4 MHz operating speed, according to Tompkins. The 64K of RAM is expandable up to 960K, with paged memory and user-transparent memory bank switching.

The Iona processor alone weighs in at £895, a full system including twin floppy drives, colour monitor and colour printer at £3,370.

Altos adds to its range

ALTOS Computer Systems, US-based microcomputer manufacturer, is to extend its range of machines on offer in the UK before the end of the year. Two models will be added to the 8-bit and 16-bit micros, which are aimed at the upper end of the micro market - those minicomputer users coming down in scale.

One will be a multi-user machine, supporting six users, says UK-based Northern European sales manager Roger Llewellyn. This will be built around the Intel 16-bit family favoured by Altos, and will use 5 1/4-inch Winchester for mass storage.

The other, to be sold only through OEM deals, is a break-

way from Altos' current technology base. It will use the Motorola 68000 processor to support 16 users, with a minimum of 512K actual RAM and virtual memory support allowing larger programs to be run.

Operating systems used will be Unix and COS 68000, from US software house Ryan McFarland. The operating system and Cobol implementation for Texas Instruments' computer range were written by Ryan McFarland, which is pushing its COS operating system hard into the TI user base.

And the push is not one-sided, according to Llewellyn. "We have been approached by a lot of TI dealers," he says.

NatSemi signs Japanese deal

JAPANESE telecommunications and electronics manufacturer Oki has reached agreement with US National Semiconductor to co-operate in development of MOS memory chips. The deal will involve technology exchange, and joint development and production of advanced chips. Both NatSemi and Oki currently manufacture 64K dynamic RAMs, and Oki has already announced a 256K chip.

Micro News is compiled by Robert Parry

Microfloppy standards battle victory for Sony

THE standards battle for microfloppies - discs less than four inches in diameter - looks set to produce a winner. While systems from rival companies are being looked at avidly by micro makers here and in the US, the Sony format, using 3 1/2-inch discs, has been tentatively accepted as the basis for a standard by several US and European drive and media suppliers.

The proposed standard was submitted to an ANSI committee last month, by companies including Shugart, Micro Peripherals and Verbatim. It would take Sony's design and adapt it to be plug-compatible with existing 5 1/4-inch floppy drives. This would involve changing the number of tracks from 70 to 40 or 80, and give a capacity of 1 Mbyte for the double 80-track version. Sony's drive currently gives 437 Kbytes on a single-sided disc.

ANSI is likely to take a year to decide on accepting the proposed standard, but the companies involved have said they will go ahead and produce drives based on it. They feel they cannot afford to wait for the standard to be given ANSI's official blessing. If enough products appear on the market the standard will become established anyway, as happened with IBM's 8-inch and Shugart's 5 1/4-inch drives.

Apart from the floppy drive and media manufacturers that have taken to the Sony microfloppy solution rather than its main rival from a Hitachi/Matsushita/Maxell consortium, Sony's drive has been boosted by a \$30 million order from Hewlett-Packard and a recent OEM agreement with RCA. HP's order represents about a quarter of a million units, which will be delivered from next year.

While the jockeying for

acceptance carries on in the US, competition in the UK is hotting up too. Although Sony's drive was launched nearly a year and a half ago in the US, it has only just put in an appearance here. The Hitachi and Co drive was announced in June for the UK, and should start going out to end users by the beginning of next year, while a Hungarian offering marketed through Bats-NCI is poised for delivery in reasonable quantity.

But despite the relative lateness of announcement here, Sony does not think itself at a disadvantage. "We have had lots of OEM enquiries," says product marketing manager Robin Allison, "though until now it has all had to go via Japan and has resulted in no business because of the complexity. But now Sony UK is doing OEM sales direct."

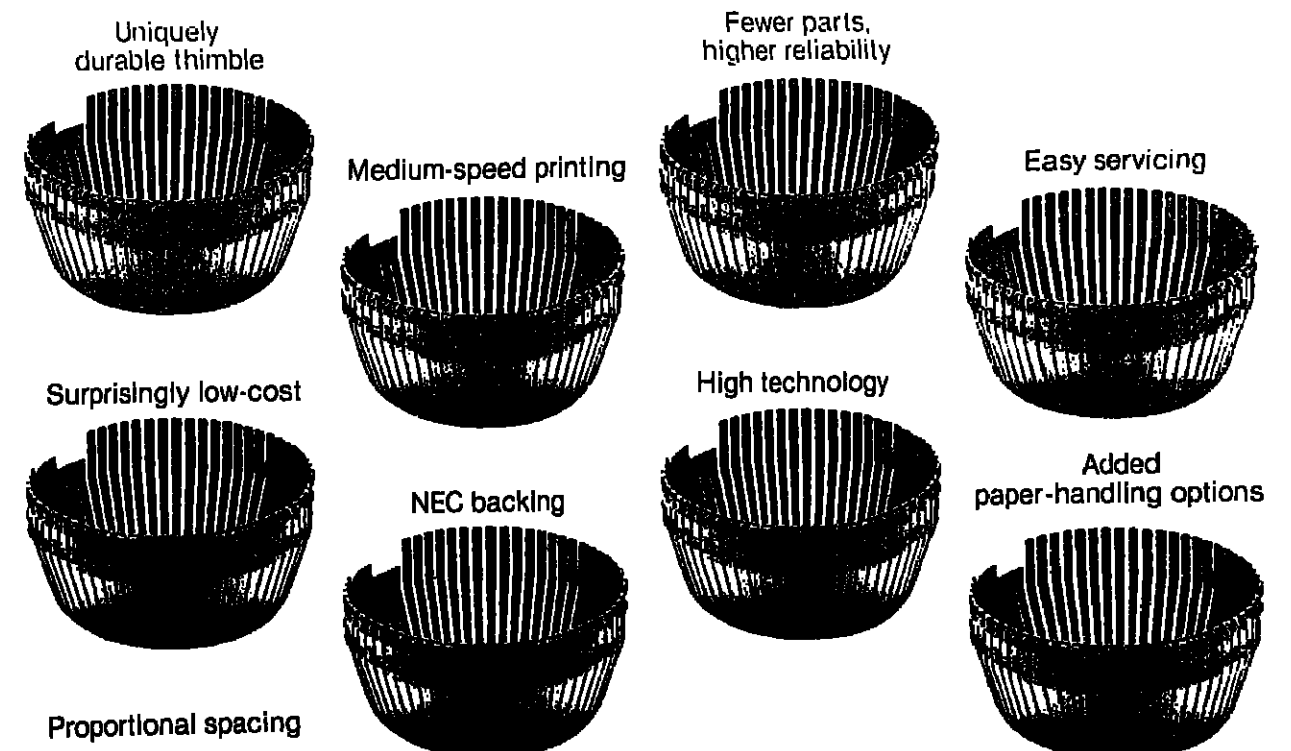
Allison reckons he can deliver up to 10,000 units a year with no

problem, and puts this forward as one of the Sony drive's advantages. The other main features he pushes is its ability to work off batteries, making it suitable for portable computer use.

One thing held against the Sony unit in the US standards fight has been the lack of an automatic shutter on the plastic cassettes protecting the disc medium. The Hitachi drive has such a spring-loaded shutter, as does the Hungarian drive, though this is out of the US running because of its Eastern European origin. But the Sony unit could easily be adapted to have an automatic shutter, and this is not seen as a major sticking point.

UK micro manufacturers and marketers are busy testing out all these rival solutions - with their conflicting sizes - to the micro-floppy.

A thrifty new generation of "thimble" printers.



NEC's Spinwriter 3500 Series

If you're thinking about choosing a "daisy wheel" printer, think again. In the long run, NEC's new medium-speed Spinwriter 3500 Series may well be the more cost-efficient choice.

Our unique thimble element gives more characters in many languages. In fact 128 versus the more common 96.

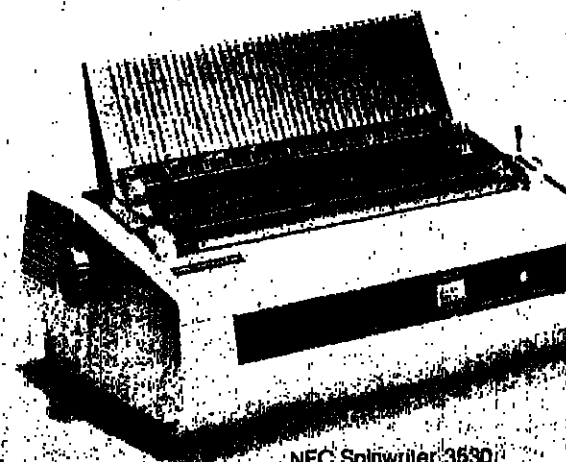
By dramatically reducing the number of components in the Spinwriter 3500 Series, we've made it one of the most reliable and cost-effective printers you can own.

The new 3500 Series also comes with a wide choice of paper-handling options and the latest word-processing features such as proportional spacing.

All this, and full backing by NEC - one of the world's largest electronics manufacturers.

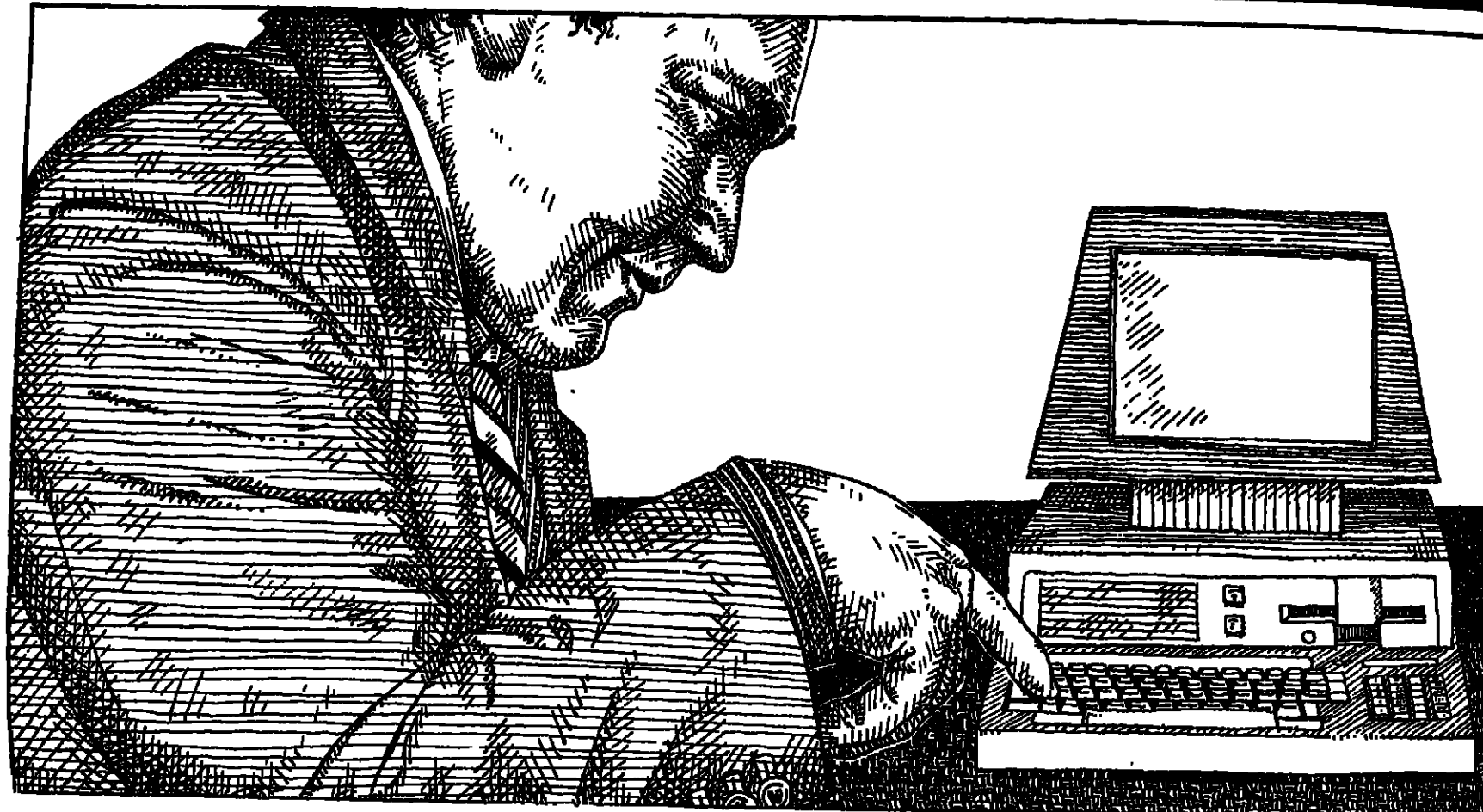
NEC
Nippon Electric Co Ltd

For UK and Europe, please contact: NEC Telecommunications (Europe) Ltd, NEC House, 164-166 Drummond Street, London NW1 3HP, U.K.
Tel: 01-268-6100. Telex: 26104 NEC ED.
For West Germany, please contact: NEC Telecommunications (Europe) GmbH, Weyher Strasse 148, 7040 Heilbronn 1, West Germany.
Tel: 02141-278-0. Telex: 261731 NEC DE.



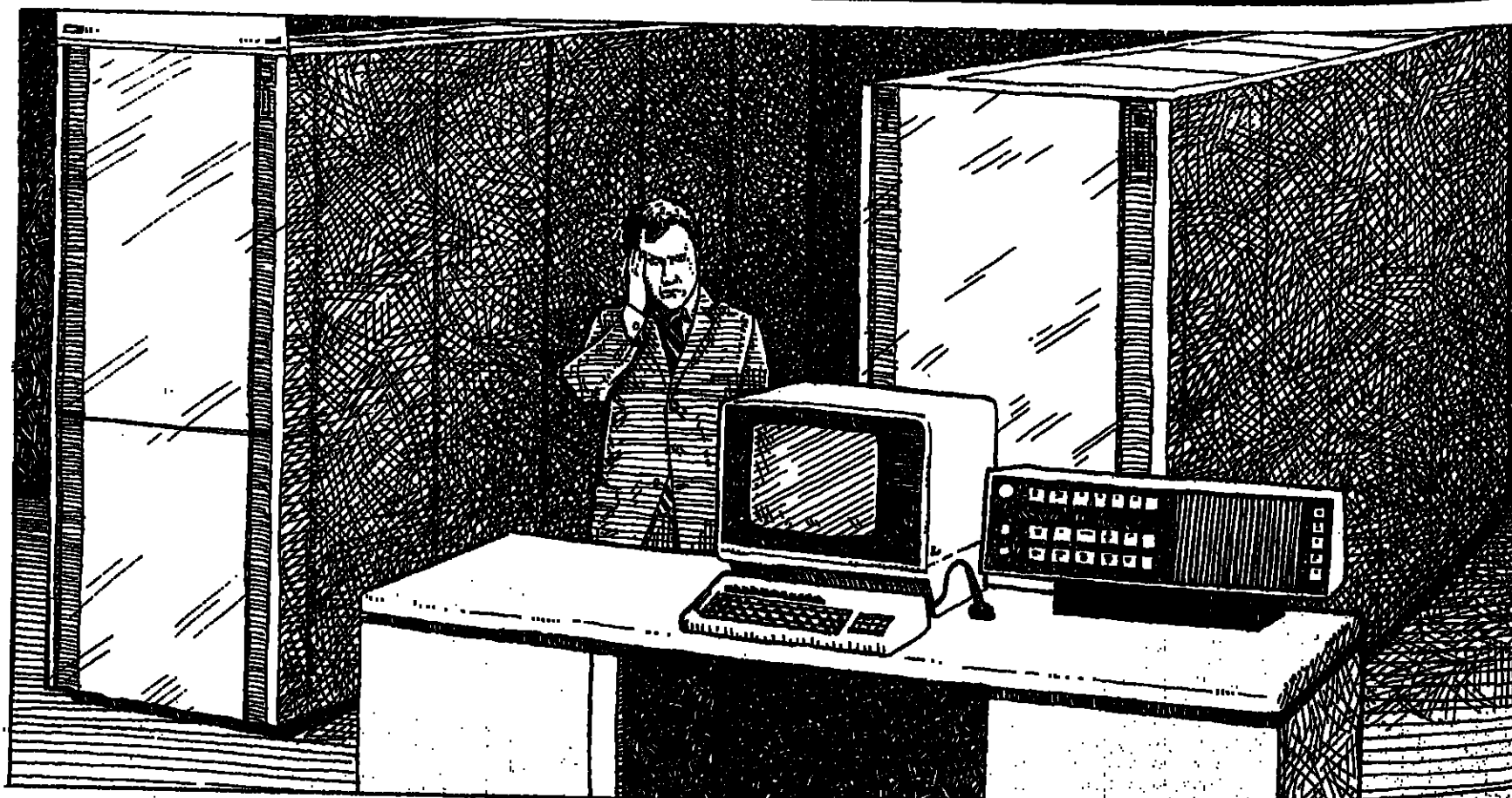
NEC Spinwriter 3500

For a growing business this computer could be too little.



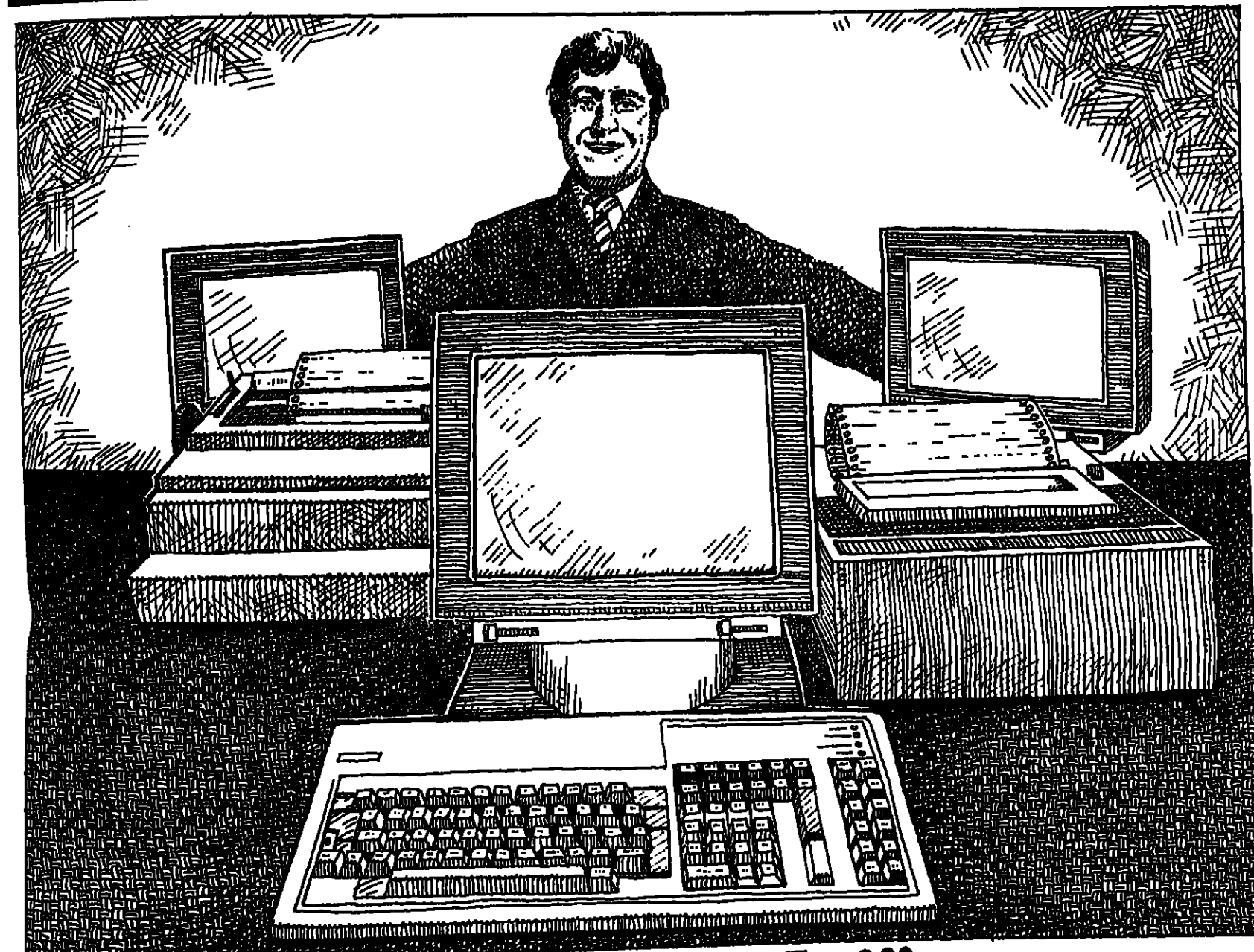
THE MICRO

This could be too much.



THE MAIN FRAME

And this is not a moment too soon.



The "Multi"

- ☐ **MULTI-PURPOSE.** Management information provided instantly by simultaneous execution of order processing, stock control and accounting.
- ☐ **MULTI-TERMINAL.** As your business grows, so does the Multi. With minimum disruption it can accommodate many more terminals.
- ☐ **MULTI-ACCESS.** The same information can be used at the same time by different people, but access to confidential information can automatically be restricted.
- ☐ **MULTI-ROUTES.** Just a phone number, post, or account code or even the first three letters of a name. That's all the Multi needs to find any Client account or stock item.
- ☐ **MULTI-SUPERVISOR.** Simplicity, ease of operation and the built-in "supervisor" means that your own staff can be trained to use the system.
- ☐ **MULTI-COMPANY.** All these factors make the Multi the first computer equally suited to any company with a turnover between £1m and £30m and, at under £5000 p.a. it'll be one of the cheapest employees on your payroll.

For more information on the Multi, either telephone us on 01-785 6666 or simply attach your company's letterheading to this coupon, ticking the appropriate box below, and indicating your position in the company. Then send to:
Valerie Belfer, British Olivetti Ltd, Olivetti House, P.O. Box No. 89, 86/88 Upper Richmond Road, London SW15 2UR.

- ☐ Quotation ☐ Demonstration
☐ Feasibility Questionnaire

olivetti
BUSINESS SYSTEMS

CW 14/10/82

Dep't 10/15/82

PROFILE

Harp calls the tune in her \$36m business

IT HAPPENED to be computers that German-born Lore Harp turned her hand to when she founded Vector Graphics in California. She would probably have been just as successful had it been penicillin.

Harp is not a technical person. In 1976, at the age of 32, and with two children growing up, she felt ready to go back to work. "My former husband had a memory board," she says. "I was surrounded by microcomputers, and picked up the idea almost by osmosis."

"I was not interested in writing programs, but I was always looking for business opportunities." So for \$6,000 Harp and another woman, Carole Ely, founded Vector Graphics and began production in a bedroom. Since then, she has presided over one of the fastest growth stories in the computer industry, and last year Vector turned over \$36 million.

In 1985, Harp aims to take \$200 million, and recently launched her company into Europe with twin centres at Windsor and Düsseldorf.

Now Harp is chief executive officer and chairs the board of directors, while Ely is senior vice-president of communications.

Vector specialises in business microcomputer systems, which it sells through a worldwide network of dealers supported by a communications system called DealerNet. The aim, says Harp, is to drive a wedge between personal business computers, and bigger minicomputers.

Vector boasts a couple of firsts in the microcomputer business. It claims to have been in 1979 the first microcomputer maker to adopt the CPM operating system as standard. And in 1980, its Vector 3 computer was the first multi-user micro with data processing packages.

Now the two main products are the Vector 4 standalone workhorse, and the Series 5000 multi-user eight and 16 bit systems, both announced at Hannover.

In 1979, Vector for the first time sought outside capital and raised \$750,000 for future growth. Then in October 1981, it received its full baptism by going public.

This raised \$13 million from about 10% of Vector assets. Harp became a US citizen a few years ago. "I found I was following US politics and policy," she explains. She went over to the US from Germany in 1966.

Clearly business comes easily to her. She vehemently denies she is a workaholic, and pins her success on common sense — although

perhaps not that common, she adds on further reflection.

"I find working a great deal of fun," she says, "hiring people, creating recognition in the marketplace. One thing leads to another."

With a degree in anthropology, followed by a term in art school, Harp did not look set to ride the buck to the bank. Yet she is not at all surprised by her success. Her business acumen was probably inherited, she says, and it simply took her a few years of drifting around to find where her true talent lay.

Harp places great faith in Europe, which she believes will restore Vector's growth curve to its original steepness.



HARP... From memory board to multi-million dollar empire.

PLATFORM



For I dip into the future, Far as human eye could see, Saw the vision of the world, And all the wonder that would be. *Tennyson*

THE information revolution is expected to bring about social and economic changes rivaling those following the industrial revolution of two centuries ago.

It seems to me that we should question with a critical mind whether the undoubted technical marvels that continue to emerge are of unambiguous benefit; whether we are ready and able to adopt them; and, if we do so, what will be the social impact.

The markets for information systems are developing fast. However, there have been excessively optimistic forecasts of the speed with which new technology will be adopted. Typical of this has been the exaggerated expectation for Prestel. But Prestel is not a failure; it is we who have failed to recognise the factors which determine change.

While the "push" is provided by the advance of technology and the "pull" by the demand of the customer, the speed of change is moderated by the money which is available and the readiness of society to change its way of doing things.

Looking first at information systems in the home, we can trace the progression from monochrome TV in the Sixties, through colour TV in the Seventies to today's massive growth in video cassette recorders. There has never been a period when the actuality and prospect of new services in the home has been so varied or prolific; suddenly, for the Eighties there is a collision of opportunities.

The technological revolution won't happen all at once

From Brian Manley's inaugural address as chairman of the Institution of Electrical Engineers.

The consumer is unpredictable. Two years ago, few people would have forecast today's dramatic growth of the video cassette recorder market. It is far more difficult to assess the future success of all the new home information services which are available today and promised for the future; but they cannot all succeed.

At present, the consumer's choice seems fixed on entertainment, but a useful pointer is provided by the market for CeeFax and Oracle.

From 1976 to 1980 a total of 100,000 TV sets incorporating teletext were sold. In 1981 alone the figure doubled to 200,000 sets, while so far this year 30% of all large-screen colour TV sets sold incorporate teletext.

The price, though falling, is still significant, so there is little doubt that demand for this simplest of all home information systems is growing fast.

The market for small computers has grown astonishingly quickly. I believe that the key to their widespread use lies in the schools; by the end of this year virtually all secondary schools will have at least one, while a significant number of primary schools now have their own micro.

When these numbers grow by an order of magnitude, as they must, we will see a generation ready to change the nature of information systems in the home.

Turning to the office, we observe that there are about 60 million office workers in the world today concerned with collecting, collating, manipulating and transmitting information. And in the UK there are as many filing cabinets as office staff employed. It is possible to improve the

effectiveness with which we handle the inevitable flow of paper. It is clearly defined applications of this kind that industry and commerce show little reluctance to invest in information technology, and we have concentrated our R&D on such defined tasks.

If we presume that the impact of technology will follow similar patterns to those we have seen in the past, we can forecast a society little changed from today. Employment patterns in this country have changed steadily in the last 70 years, despite the dramatic developments which have occurred in that time.

The most striking feature of this picture is the consistent upward trend in the proportion of non-manual jobs, particularly the surge that has occurred from 1950 onwards. Yet this is a period in which the introduction of computers was forecast to remove jobs.

Warwick University's forecast to 1990 shows a reduction in total jobs but a continuing rise in non-manual jobs, with a trend away from manufacturing and an increase in the proportion of non-manual work to some 60% by 1990. This view of the impact of new technology suggests that, like its predecessors, it will be neutral in effect.

At the other extreme, if we were to accept the Japanese fifth generation programme as the pattern for the Nineties, then the changes that we face would be truly profound.

There is little doubt that the programme's objectives will be met — if not by 1990, then during the decade after that. The scope of electronic systems will thus be enormously widened.

Brian Manley is group manager/director of Philips Business Systems.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, October 14, 1982

Whither the Alvey Report?

THE Alvey report is here. Not with a bang but a whimper. At least that is the impression one would get if the importance of Alvey's "Programme for Advanced Information Technology" were judged by its reception in the national Press. Alas, on the day the Alvey report was released the businessman's daily bible, the Financial Times, was not published in the UK due to an industrial dispute. And with only a single article in the other quality dailies and nothing in the Sunday papers, the Alvey report did not seem to be an event that we should take very seriously.

But what of the Conservative Party Conference in Brighton. Surely the government, which has put most of its eggs in the rosy basket of information technology, would give more than passing notice to the report which promised to outline our response to the Japanese threat.

Think again. It was as if the report had never been given. On Thursday last, the day after the report was officially issued, Industry Secretary Patrick Jenkin and Employment Secretary Norman Tebbit addressed the Conservative Computer Forum in Brighton. To a rapt crowd they promised that the firms that keep up with technology are the ones that keep their people in jobs. This government, Jenkin said, had more than doubled expenditure on new technology since it came to office.

And £1 billion would be spent in the next three years under the Science and Technology Acts. But nary a mention of Alvey.

Perhaps the £350 million programme that Alvey is recommending over the next five years is too piddling a sum to take notice of. After all, losses at British Airways are reported to be soaring towards £550 million a year, while losses at the British Steel Corp are nearly in the same league.

Alvey's task was impossible in the short time allotted to him. With over 100 organisations giving "substantive input" to the Committee, it is not surprising that the report settled on a broad brush picture of what is needed. The report lists a number of bodies it would like to set up — a Software Production Centre, a National Quality Control Centre, and a Software Products Brokerage Scheme to name three. But the report raises more questions than it answers in terms of the actual mechanism for getting the programme for Advanced Information Technology up and running.

Which brings one to the key section of the report: Management of the Programme. The report recognises that a lean and dynamic management is necessary to avoid the creation of yet another government bureaucracy. The individual to head the programme should be recruited from industry and have at least under-secretary rank and have direct access to Ministers. His authority would be all but absolute.

If the Alvey proposals are accepted by the government — which is no sure thing — selection of an individual to head the project will be the most important element in both its short and long-term success. And a project director recruited from industry will be the most likely way to ensure co-operation from industry in supporting the kind of collaborative ventures the Alvey Committee has in mind.

Alvey has surprised a number of people who were pre-guessing the content of the report by putting the emphasis squarely on immediate commercial exploitation of products. There is to be money for university research — some £57 million over five years — and a number of cracks are taken at the government's education policy. But the role of industry is put in the forefront.

We hope the quiet response to the report is a sign that many people are reflecting deeply on its implications. Alvey has not come up with any perfect solutions. But he has produced a framework which is waiting and ready to be built upon.

We await with interest to see how quickly the government accepts the challenge to back its own vision of the future.

1984 and all that...

THIS week's example of the strange things people say about computers was sent in by Brian Dagnall of Lymington, Hants, who wins £5. Faced with a water bill for £750,000, Gwent County Council, in South Wales, has instructed its employees at the council offices to reduce the flushing of lavatories as an economy measure. Use of lavatories will in future be monitored by computer.

LETTERS

What does Tops know about IT?

I WAS interested in your front page report on the IT82 controversy (CW, September 30). The figure of 98% — given as the proportion of the population ignorant about IT — has decreased, I hope, but there are still government agencies, such as Tops, unaware of the implications of IT.

In June this year I joined the ranks of the unemployed. Rather than sit around helpless, I decided I would make use of my time. Like many of my fellows I find I can just about keep pace with today's increasing complexity. But I'm only skimming along the surface.

While one is busy developing and designing, there just is not the time for in-depth study.

But having become unemployed, I decided to rectify the matter. With an honour's degree in electronics and ten years' experience behind me, I decided to go back to university and take an ad-

vanced degree. I applied to Surrey University for a place on its MSc course in systems engineering. Some time later, in spite of the high competition for places, I was pleased to be offered one.

I applied to Tops for funding, and expected this to be merely a formality, especially as this is Information Technology Year. Not so, I was turned down or, to be more exact, the course was — I was offered alternatives. The course had been looked into and was considered unsuitable. Several others had been refused funding for this course.

Several attempts have been made to discover why this course is being refused funding, but so far they have proved unsuccessful.

The civil servant who took the decision was contacted, but he refused to discuss the matter.

Going back to the "alternatives", these proved to be little

more than diplomas in electronics, of little use to an experienced systems engineer. This confirmed my suspicions that the people at Tops are not at all qualified to take such decisions.

The implications of this are quite serious, and for me fairly obvious, because I am still unemployed and in these circumstances it is very difficult to find the sort of professional work I am used to. I was thinking of the wider implications. Looming over the horizon are cable TV, satellite broadcasting, fifth generation computers. There is already too little industry investment in these fields. But where can companies already involved find the people of the right calibre? Is it the intention, by design or default, that the UK should drift around in some Third World backwater.

KEITH PARKINS
Farnborough, Hants.

The ergonomics debate Darkcrest and DEC

MAY I correct some errors in your editorial about ergonomics and the IT campaign (CW, September 30).

The London Ergonomics Group did debate the motion "This house believes that the government's Information Technology campaign is misguided in that it fails sufficiently to encourage an ergonomic approach to IT, its use, installation and consequences for work practices and job design" with representatives from the IT82 office present to speak against the motion.

Please note the London Ergonomics Group is a group within the Ergonomics Society and the motion put forward did not represent the official view of the Ergonomics Society. Your report on the front page of the same issue implied that I had put forward this motion on behalf of the Society — this is factually incorrect.

As far as the motion is concerned, it is a well known and common tactic to put forward a motion rather more strongly worded than the proponents might consider a true statement of the case — the IT82 project manager accepted the challenge in the spirit

in which it was offered and an interesting and enjoyable debate ensued with Ray Dingle himself speaking against the motion.

I feel sure that all ergonomists would support me in protesting over your final pejorative statements on ergonomics. Ergonomics in the context of IT means jobs and working environments, and it could be argued that some of the major challenges in the future will be concerned with the human factors aspects of the implementation of systems and products.

Many ergonomists practitioners have already offered contributions in this area through the pages of your newspaper, and I am aware of at least one major initiative with the President of the Ergonomics Society chairing an NEC working party on human factors in information technology. Ergonomists wish to help in the implementation of IT projects, can help and are helping.

LINKLATERS & PAINES
London EC2

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

JOHN WOOD
Communications Complex Design,
Richmond, Surrey.

Facts for Executive

AS designer of the Executive computer system mentioned in your article by Maggie McLening, "Relational DBMS for 16-bit micros" (CW, September 16), I am concerned by the inaccuracy of it. Rarely have I seen so many factual errors in so short a piece, though in all fairness I suspect that most of these errors are attributable to your source of information rather than your staff.

1. Relational database for 16-bit micros will not be available "soon" on the Oasis operating system. The Control system is dependent on the Oasis Basic compiler which will not be ready for 16-bit micros before March 1983 at the earliest. It would be rash to assume that Control would then run under Oasis 16 without some teething troubles, and our forecast is that Oasis 16 with Control, Sort, Masterplan, and the many other facilities currently available on eight-bit Oasis will not be installable at end user before August 1983.

2. Sisco has not implemented Control on Oasis; Control was specifically designed for Oasis by its authors.

3. The Control database system was developed by Phase One. It was developed by Quay Data Systems of Denver, Colorado and is marketed by Phase One. Every Control program listing states this on the first line.

4. The Executive machine is not made by "the Computer Information Company"; it is made by Computer Information Centre Ltd which has been trading under that name for over 13 years.

5. Neither the IBM Personal Computer nor the Sigma currently supports Oasis. Oasis 16 will run

on those machines some time in 1983. Future compatibility between different versions of Oasis 16 and particularly between personal computers using TV monitors for output and business computers using serial VDUs is unpredictable.

6. The decision whether or not to launch a 16-bit version of the Executive does not lie in Sisco's hands. It is strictly a decision for CIC, though of course Sisco is free to choose whether to sell it when we do launch it. The reason given for our decision not to launch it is totally incorrect. In fact our reason is that so far no 16-bit operating system has reached a great enough degree of efficiency to make 16-bit micros operate a multi-terminal business system faster than eight-bit micros. The success with which our R&D efforts to speed up eight-bit technology are being rewarded suggests that our eight-bit technology will outperform any 16-bit micro for some time to come.

7. Sisco has not integrated word processing into Control. This unique and immensely powerful blending of information retrieval and word processing was developed entirely by CIC.

8. I can't imagine how Mr O'Brien came to quote £5,000 as the end user cost of a 5-user Executive system. According to my price book, that figure would be about £18,000.

9. Our combination of database and word processing techniques has been installed in many organisations, but regrettably they do not include three major banks.

DAVID SHIRLEY
Managing director,
CIC, Letchworth.

The value of seminars

ACCORDING to your front page report (CW, September 23) Robb Wilmot, managing director of ICL, has stated the "IT policies of government", including specifically the funding of awareness seminars, I would like to defend these seminars, which are part of the two awareness programmes called CAD/CAM and CAD/MAT.

The Institutions of Mechanical Engineers and of Electrical Engineers have been charged by the government with responsibility for these programmes. They are enabling hundreds, and ultimately thousands, of senior executives in British industry to attend reasonably priced one-day seminars. They are professionally run and provide an introduction to the use of computers for design and manufacture in mechanical, electrical and electronic industries.

If CW readers would like to know more about these seminars the relevant institutions will be keen to supply information.

A. WEATHERALL
Institution of Mechanical Engineers
(Computers in Manufacture Committee),
1 Birdcage Walk,
London SW1.

Cheat is foiled

I CHEATED on your puzzle (CW, September 9) by using my scientific calculator to find the 5th root of 1,889,568. It therefore took about five seconds to identify.

I thought I would then test what was said about any number raised to its 5th power always retaining the same final digit, but for some reason or other my calculator kept yielding 247,100, 1,419,860 and 148,580 for the numbers 19, 16 and 17, so I ended up doing it the "long" way to verify what had been said.

Oh dear, cheats never prosper!
MARTIN FLETCHER
London EC4.

DOWNTIME

Secret of the Japanese success

IT has to be said that the Japanese fifth generation computer project has come in for a lot of stick. Some US cynics have chastised it as a smokescreen to cover up a Japanese invasion of contemporary technology.

Others describe it as the guilty conscience of the Japanese emerging after years of plagiarising Western ideas.

There is probably a grain of truth in both theories, but the Japanese are certainly promoting it, rather touchingly, as the repayment of a great debt to Western innovators.

"We want to give something back to the West," a prominent member of the Japanese fifth generation elite told me at a conference last summer.

Yet the Japanese seem still to suffer from an inferiority complex about their creative skills. So much so that in an address to a recent London conference, Fujitsu director Yukimaro Kawatani referred to a recent survey in which young Japanese people were found to be more intelligent than their American or European counterparts. Japanese youth between the ages of six and 16 clocked up a staggering average IQ of 111, as opposed to 100 in the US.

"I hope this will lead to more innovative research from young Japanese and more creative co-operation with your countrymen in the future," Kawatani assured us.

Sadly I fear Kawatani has made a premature leap on to a bandwagon before making sure where it is going. IQ tests are bunk to us here at Computer Weekly, but I don't mind betting that the sort of creativity Kawatani is talking about comes from people with average IQs considerably higher than 111.

Dare I put it to you that the results of this IQ survey give no promise of more innovation from the Japanese, and instead confirm what we knew all along — that they possess a high collective intelligence, but do not produce many geniuses.

That is why they are so good at big business.

While yet another said that it was not a language at all, but a tool.

Even one of the speakers at the conference, Terry Booth of Clucom, admitted that he had worked with them for years before learning what they were.

They did not seem to know.

I asked several to define it, and the answers I received were various. One said it was a new kind of language, another that it was an old type of language about to be superseded by the fifth generation.

DELEGATES descended on the BIS conference on fourth generation languages in the hope that they would learn how to solve their backlog problems. But first of all they had to learn what a fourth generation language is. Some of



Nothing new

"IT has been a long time since nothing new has been introduced in low-cost printer technology," proudly announces an ad for an Olivetti printer. An interesting statement since it is at once both true and false.

William Caxton introduced nothing new in cheap printers, and that is indeed a long time ago. Yet nothing new is being introduced all the time — especially in the printer market.

Those paper tycoons!

FLEET STREET earns its bread and wine from news, comment and opinion being readily available. But you could be forgiven for thinking otherwise after tangling with the computer typesetting departments of those newspapers that have managed to persuade their unions to accept new technology.

The reaction of the *Daily Mirror* to the request of my media correspondent for an interview was depressing. By all means come along, but we must read your story before it is published, was the reply.

Hardly a way to run a newspaper. The *Daily Mirror* would not be the *Daily Mirror* if Margaret Thatcher was allowed to read comments before publication.

The reaction at *The Times* was beyond belief. My correspondent was greeted with a general criticism of journalists and how they always misrepresent what people tell them — and this from the man responsible for seeing *The Times* safely to bed every day! He soon dismissed my correspondent with the words: "I don't like this interview."

The obvious reply was not made.

But my correspondent was recently reassured to learn that his unhappy experience has been shared by a more illustrious journalist.

Regular viewers of BBC's *Nationwide* programme will not have forgotten how Defence Secretary John Nott replied to Sir Robin Day's irreverent question: "Why do you think the public believe you, a transient here today and I may say so, gone tomorrow politician?" Nott's retort was: "I'm fed up with this interview. This is ridiculous." Then he flung down his microphone and stormed off.

Such moments teach more than a year of run-of-the-mill interviewing.

10 YEARS AGO

FROM COMPUTER WEEKLY OF OCTOBER 12, 1972... ICL capped a good year in Poland with an order for £1 million worth of enhancements to United Polish Shipyard's System 4/50 and System 4/70... IBM announced the long-awaited 370/125 followed by the 3380 QCR reader... The BCS accounts still showed a deficit of £5,951, the residue of the £67,000 loss for 1971-2.



WORKPLACE



SMITH... Live beer needs flexible software.

Smoothing flow of London's ale

SMALL users rarely sit on the fence when asked what they think of their hardware. They either commend or castigate.

No exception is beer agency Alan Greenwood, which is now happily married to a microcomputer system made by the UK company Bonsai. Greenwood's owner Mervyn Smith is full of praise for his dual disc system, which provides nominal ledger, purchase ledger, reports and accounting.

"The main factor is the flexibility of the software," he says. Smith adds that he looked around at several rival microcomputer systems - and was not impressed by what he saw.

The idiot factor loomed large in Greenwood's choice of Bonsai.

The system went live in April, and Smith was unable, or unwilling, to keep a manual system running until the online one could be certified free from bugs.

"I don't believe in that sort of thing," says Smith. "It only accommodates the program's inefficiency."

Apparently the Bonsai system footed this bill admirably. "The computer helped us a lot," Smith enthuses. "It can be operated by part-time people, and of all things, I've done the training."

Greenwood is one of the UK's biggest retailers of real ale, although it covers only the Greater London area and Surrey. "We offer beers available nowhere else in London," says Smith.

Greenwood offers over 60 different real ales at its London stores, which are really extensions of the standard off-licence, but cheaper. The ale is dispensed directly from cask into special plastic containers. This is particularly handy, says Smith, for sporting events at which bottles and cans are banned.

A live product like beer needs carefully planned deliveries, and in Greenwood's case these are concentrated at certain times of the week. This places a load on the ledger programs, says Smith.

"The original program assumed that the deliveries were spread over a period," he says. "We found that a lot of searching went on. We discussed this with Bonsai, and the program accommodated this at once."



DA COSTA... Happy to have his Cobol written for him.

Sparing the programmer a despised chore

ONE Cobol programmer who does not seem to resent being kicked upstairs into systems analysis is Simon da Costa of Data Logic. His job is to help develop IBM commercial Cobol systems based on Data Logic's new ReadyCode package.

ReadyCode is a Cobol system development tool, but unlike many so-called system generators, it is not an ultra high-level language that compiles into Cobol code. Instead, it offers the accumulated wisdom of many Cobol programs already written. This is stored as code in a library which was built from parts of Cobol programs commonly used.

ReadyCode was originally developed in the US by Data Logic's parent company Raytheon, and is a whole application and support service at the company's Woking centre.

Da Costa describes himself as a Cobol programmer, but with half the code needed for most applications already written, he spends a lot of time on design.

The library of re-usable code has its logic well documented, sparing the programmer a despised chore. "The programmer never uses documentation," da Costa says.

ReadyCode allows unique code for the current application to be integrated with existing code. For some applications, only 10% of the code has to be written, the remainder being drawn from the library.

But da Costa does not miss his coding, believing that the creative aspects of it remain. "I found initially people were concerned about it. They thought it would be too standardised and formal," he says. "But once people have used it a while, they seem to come round. When they see the code, they think 'I'd not do that', but the chances are it's their program that's wrong."

I had to press da Costa hard to find a criticism of ReadyCode, and even then it was only a mild one: "The only thing I might slightly change is the requirements section, which is sometimes fiddly."



RIBBINS... Engineers have much to teach commercial programmers.

Future is secure for coders

THE few programmers among delegates at the recent BIS conference on fourth generation languages were no doubt relieved to hear that they are not about to be press-ganged into Thatcher's unemployed army. Far from it!

Speaker after speaker, both from the rostrum and the floor, spoke up for this evolving rather than dying category of computer person.

The fear is that programmers, especially bread-and-butter Cobblers, are threatened with extinction by fourth generation languages, better known as system generators.

But the conference would have none of it. For example, David Whiteside, managing director of Scarab Computer Services, said: "I can't imagine a user without training doing any files on your system."

In fact, users said they were sceptical of claims for ultimate system generators that do away with the need for a data processing department.

One from Westminster City Council criticised Sperry Univac for claiming its Mapper would do precisely this.

A company that completely escaped this criticism is Cincom Systems International. Its fourth generation offering Mantis has received undiluted praise from big users such as British Steel and the Ward and Goldstone Group. One even went so far as to say that Cincom had undersold the product.

But Cincom general manager Terry Booth modestly declines such eulogies.

And he added to the conference by rolling round the conference by saying: "Mantis is only really for end users with DP experience."

The view of the systems development team at a large organisation was eloquently put by Michael Ribbins of the British National Oil Corporation. Ribbins is manager of such a team, and is responsible for technical as well as commercial systems development. As such, he is in the privileged position of being able to compare the workings of technical and commercial systems development.

"The commercial world has a lot to learn from the way engineers work with programmers," he said, elaborating by telling delegates that engineers play around with Fortran and Basic for prototyping, then hand over to the systems analyst and development team for tuning and integrating.

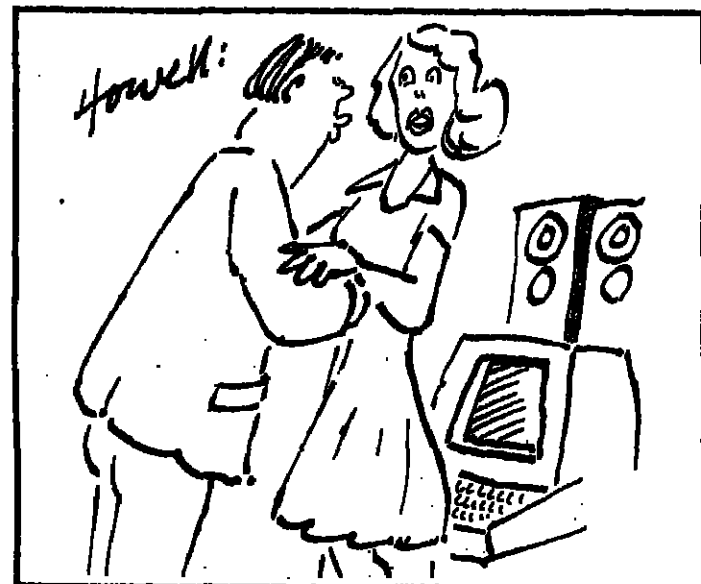
His comment is interesting, because more often it is said that engineers and scientists have much to learn from the way commercial programmers work, particularly in the way of standards and documentation.

Workplace is compiled by Philip Hunter and Andrew Thomas

So why are jobs for trainees hard to find?

Les King, founder of recruitment consultancy Les King Associates continues his series on how job functions and job titles are changing.

DAVID HALL, technical computer services manager of the Montague L. Meyer Group, is well pleased. His two trainees, recruited just six months ago, are rapidly approaching the productivity of experienced programmers, having already completed some 30



"If it's all the same to you Mr Price, we'll dispense with the user-friendly approach."

PUZZLER

OUR financial analyst is always telling me that two wrongs don't make a right - but he obviously hasn't seen this week's alphabetic (in which 0 does in fact represent zero):

WRONG
WRONG+
RIGHT

See page 53 for a suitable addition sum.

working programs between them. The two lads, Glen Hill and Jeremy Russell Brown, come from quite different backgrounds.

Glen, 23, studied various computer languages at 'A' level, and for his degree, after which he worked for a word processing bureau and, subsequently, as a data editor with Bxtel.

Jeremy, 30, spent several years working in office management after which he completed a Tops Cobol programming course, including a month of practical experience at a user site.

When they joined Meyer, which operates a number of distributed DEC PDP-11 machines, the first task was to learn Mumps, an interpretive programming language containing powerful, in-built commands for terminal handling and data manipulation.

This was done in-house using a carefully-structured series of exercises completed under the supervision of an experienced programming team leader.

Glen, who had already used Cobol, Algol, Fortran and Assembler, found the transition to the new language easier than did Jeremy, who took a few days longer to master the new concepts and different approach to problem solving.

Having mastered Mumps, however, Jeremy regards the language as a "quantum jump" whose sophisticated facilities make him come to work with a spring in his step.

Training was completed with a week of tuition in structured programming methods followed by a five-part program development

exercise designed to provide a realistic simulation of a typical business problem.

After only six weeks, Glen and Jeremy were assigned to their first live project. This was a sophisticated financial application whose object was to record and control the group's numerous foreign currency transactions.

Working within a small team, under the team leader responsible for their training, Glen and Jeremy were soon coding and testing simple programs at the rate of one every four or five days.

Because of the small-team environment, it was also possible to learn about the business application while gaining valuable experience in the technical area.

Glen's next project proved to be a baptism of fire which taught him, in no uncertain terms, the value of a structured approach to program design.

Jeremy must have seen this one coming because he made an excuse and took a holiday in the US.

The task involved extensive enhancements to an old system which maintained the group's price lists, producing both hard copy and microfiche output.

The major enhancement of badly-designed programs is aptly described by Glen as "building a 20-storey block of flats around a semi-detached house" and he is glad that the department now operates to strict standards of program design and quality control.

Our heroes' current project is a complex system to produce group management accounts incorporating powerful structure handling

facilities reflecting the diverse nature of the organisation.

Looking to the future, Glen welcomes the idea of becoming more involved in systems design which he would like to do as well as, rather than instead of, programming.

Jeremy is not yet sure of his future direction, although he feels that a minicomputer installation, organised around small project teams, gives the best all-round training for either a systems or a technical role.

From the company's point of view, how successful has the recruitment of trainees been?

According to David Hall, both Glen and Jeremy were producing useful work after only six weeks and, although they are generally given the small jobs, they make a valuable contribution to the output of the DP department.

Any future expansion of the department would certainly include the recruitment of trainees who are enthusiastic, well-motivated, cheap and easily available.

Given the high quality of training courses today, it is surprising that there are so few trainee jobs available. Although a trainee advertisement will produce a deluge of response, the experiences of companies like Meyer prove that there are some very talented candidates around.

Les King (01-240 7384) would be pleased to hear from any company considering the use of trainees.

Workplace is compiled by Philip Hunter and Andrew Thomas

NEC PC-8000 Personal Computer.



NEC turns 28 years of computer experience to your personal advantage.

It takes a great computer company to make a great personal computer. And from the start, NEC has been a pioneer in computer technology. In fact, we invented the all-semiconductor computer in 1959. Now, hundreds of innovations later, we've made it personal.

We present the PC-8000, a powerful and friendly business tool that can help you get more done in a day than you ever could before. It combines some of the most reliable hardware on the market with application packages designed to make the most of its unique features. In addition, the PC-8000 accepts popular CP/M® business software, making its possibilities virtually limitless.

The NEC PC-8000 is a truly remarkable personal computer. It's the only one that can handle all the tasks of a traditional computer. So why not make it yours today? Call NEC for more information.

Write for more information about the NEC PC-8000.

NAME _____
COMPANY _____
ADDRESS _____

Attach this coupon to your letterhead and mail it to: NEC Telecommunications Europe Co. Limited, NEC House, 164/166 Drummond Street, London N.W.1 3HP, U.K.

Computer

PEOPLE

Codex MD named head of Motorola

CODEX managing director Rod Turvey has been appointed chairman of Motorola. Codex is one of the five sectors within Motorola in the UK, the others being Semiconductor Products, Communication Systems, Automotive and Industrial Electronics, and Government Electronics.

Turvey graduated in telecommunications at London University and gained experience in the electronics industry working for

such companies as IIT, AEI and GEC, before joining Cole Electronics in 1969.

He became a member of the Motorola team following the acquisition of the Codex division of Cole Electronics last year.

Turvey, a chartered engineer and member of the British Institute of Management, replaces Mike Phillips who has moved to a new position with Motorola in the US.



UK systems and software house SPL International has named Tony Yates (above) managing director of the information systems division. ISD is one of five divisions in SPL and specialises in systems for the banking, finance, government and manufacturing sectors. Yates has been in the computing services industry for 15 years, holding technical and management positions at companies including Datagraphix, Computer Resources and CACI International.

Geoff Fisher (left) has been appointed sales executive in government sales at Delta Data Systems. He was previously the company's government projects manager. He joined the company two years ago, after eight years with CMC, where his posts included London service manager and international sales engineer.

Technical consultant for EPS Consultants' London area is Dominic Heffron. He joins the company from Gelsco, where he was a senior customer consultant.



Nixdorf Computer has appointed two sales executives, one in the finance division in London, the second in its Manchester office. Tony Carter, becomes account executive responsible for sales of the Nixdorf banking system to banks and financial institutions in London. He was previously a sales executive with Arbat UK. Glyn Kilroe, previously operations director at Tidman Industrial Services, will sell Nixdorf's 8870 range of computers in South Yorkshire.

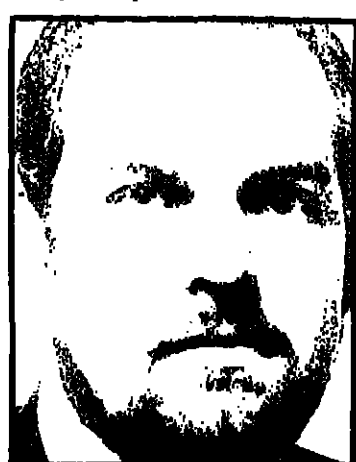
Real Time Control has made two sales executive appointments. Martin Brophy and Kevin Parry join the company's Southern region. Brophy was formerly with the Berkel Group, while Parry was a technical salesman in the shoe industry.

UK sales and marketing manager at Perkin-Elmer Data Systems is Brian Hanley, who was formerly with Honeywell. Fred Mascarenhas, who has been with Perkin-Elmer for three years, has been promoted to UK product marketing manager.

John Banks has taken office as president of the Institution of Electrical Engineers (IEE). He replaces Sir Francis Tombs. Banks is technical director of BIOC and was elected deputy president of the IEE in 1980.

Evets Computers has appointed Robert Underwood as an account manager. He was previously a sales executive with General Automation.

Cifer Systems has appointed Derek Laister as South-west regional manager. He was previously a sales executive with Modular Computer Systems.



Clive Brooke (above) has joined Peachtree Software International as special projects manager. He joins the company from Storegate Computing, where he was technical manager. Before that he spent three years at Marcol Services, following a period as self-employed consultant.

Market support specialist at Newbury Data Recording is Stan Smith, formerly a systems development engineer with Applied Data Research, Harris and Sanders.

Euro Electronics has expanded its servicing department with the appointment of Paul Chapman as a service engineer. He was previously with Marconi Avionics.

ABS Computers has named Roy Thorne as marketing manager. He joins from the Allen Computer Group, where he was in sales and software support.

After 10 years in sales with Pitney Bowes, Yellow Pages and Rank Xerox, Bruce Templeton has joined Peachtree Software International as a salesman.

Coventry-based software house Systems Resources has appointed Ian Morley as a computer consultant. He joins the company from Birmingham City Council, where he worked in the Treasurer's Department developing general local government systems.



Prime Computer has announced two further appointments to its UK sales force. John Alsop has become sales executive in the company's Central branch, based in Milton Keynes. He has been with Prime for four years, latterly as a senior systems analyst working in the company's Bedford office. Keith Palmer, who joins Prime as a senior sales executive, previously worked for four years at Sperry Univac as a major systems salesman.

Versatec has appointed Jan Guesens as director of international operations. He was formerly with Calcomp, where he was vice-president of product marketing at the company's international division based on the West Coast of America.

New systems consultant at MSA (Management Science America) is Pauline Walker (above). She joins the company from Roche Products, where she was financial accountant, working on a project implementing the MSA General Ledger package.

DIARY

OCTOBER 16

Symposium. BCS Medical Group/Institute of Medical Laboratory Sciences. UMIST, Manchester.

OCTOBER 18

The European Port Data Processing Association - the birth of a concept. BCS Glasgow branch. Music Room, Staff Club, University of Strathclyde, John Street, Glasgow, 7.00.

OCTOBER 19

Database management systems on microcomputers. BCS Microcomputer Group. BCS Headquarters, Mansfield Street, London, 2.00.

Visit to London Air Traffic Control Centre. BCS North West London Branch. Numbers limited. Contact Frank Rich on 01-864 5311 ext 2359 to reserve place.

Prestel developments for business. BCS Word Processing and Office Automation Group. Prudential Assurance, 142 Holborn Bars, London, 5.30.

OCTOBER 20

Communication network architectures. BCS Data Communication Group. Chemistry Theatre, Birkbeck College, Malet Street, London, 11.00.

CONFERENCES

The fifth Annual Meeting of the Gould SRL International Users Group will be held in Madrid from November 3-5. Papers will cover applications and systems techniques. A 32/27 machine will be available for demonstration, and there will be an exhibition of hardware and software. Registration fee is £20, which includes most meals, but excludes hotel. It also covers the cost of papers and simultaneous English/French translation. Details from A. Stevens or R. Johnson, NMI, Faggs Road, Middx TW14 0LQ. Tel: 01-977 0933.

OCTOBER 21

Visit to British Leyland, Longbridge. BCS Birmingham branch. 10.00. Please note revised date and time. Details Martyn Davey on 021-743 4222 ext 2234.

Computer privacy and a data protection law. Speaker Pat Hewitt. NCCCL. BCS London Branch. Charing Cross Hotel, The Strand, London, 6.00.

OCTOBER 29

Jubilee dinner. BCS Birmingham, Coventry and Wolverhampton branches. The Council House, Birmingham. Tickets limited, so apply early to Martyn Davey on 021-743 4222 ext 2234.

Talk by the Rt Hon George Thomas, MP, Speaker of the House of Commons. BCS and other professional associations. Town Hall, Cheltenham. Apply early to D. West on Gloucester 416301.

JANUARY 5-6

Viewdata. Conference on the state of the art. Institute of Information Scientists WP and computer information special interest group. Details Mrs Bird on (061) 645 2600 ext 8611.

What will it cost to make your next computer a fail-safe one?

Recently we asked some computer users if they'd like a computer with resilience. The ability to bounce back quickly after going down. A bit like asking a Managing Director if he'd like a guaranteed profit! Not surprisingly, they all answered "yes". Then we asked if they'd be willing to pay a lot extra for it. A resounding "no", from all but a few special cases. Again, we didn't fall off our chairs in astonishment. In fact, we had confirmed our suspicions that people want their money's worth from the computer hardware they buy.

So we developed a new approach. One that lets you buy a transaction-processing computer from CTL with just the amount

of resilience you need and can comfortably pay for.

We called it MOMENTUM.

With MOMENTUM you have several add-on options. The least expensive gives you instant recovery from a program failure, and full recovery from start-up after a power failure in a little more than a minute.

How much? Complete CTL systems start from about £50,000. MOMENTUM options start from around £1,000. When you need more performance and resilience, you just add more.

CTL computers offer a lot more besides.

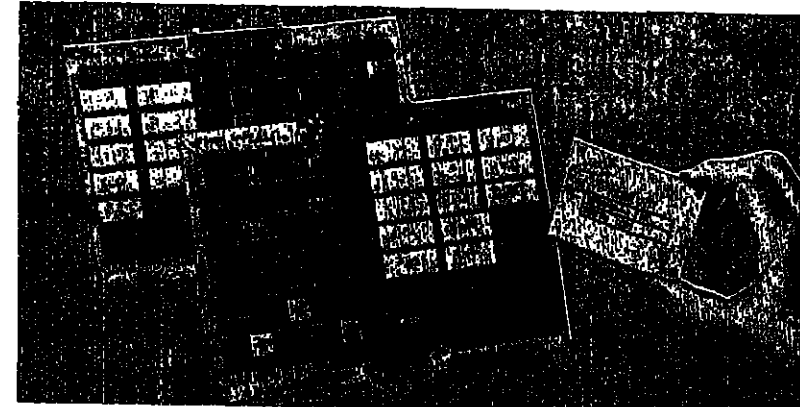
Isn't it time we talked with you? We will, if you like. Just post the coupon.

Attention: Roger Fulton
☐ Please send a copy of your new MOMENTUM brochure.
☐ Please contact me for an appointment.

Name
 Job Title
 Company
 Address
 Telephone Ext.
 Computer Technology Ltd.,
 Eaton Road, Hemel Hempstead, Herts. HP2 7LB.
 Telephone: (0442) 3272. Telex: 825052

CW 14/10

Ferranti military computers. You can do more than count on them.



You can rely on them. Designed to work first time and every time.

Undeterred by extremes of heat and cold, vibration, shock and radiation, as required.

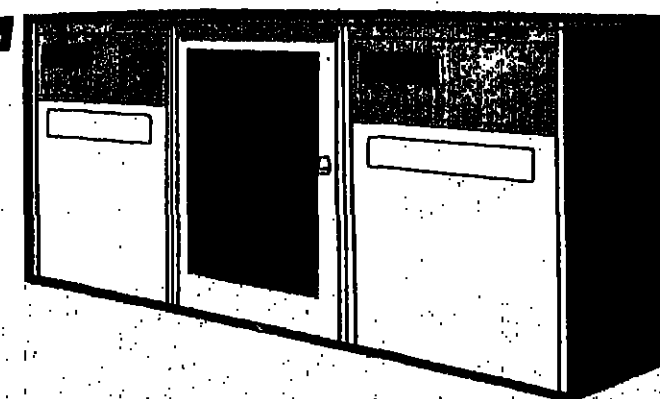
Ferranti military computers and microprocessors, in service all over the world for naval, ground and air defence, at bases, training establishments and airports.

Everyone counts on them.

Ferranti Computer Systems Limited,
 Cwmbran Dept. Sales, Ty Coch Way,
 Cwmbran, Gwent NP44 7XX
 Telephone: Cwmbran (06333) 71111
 Telex: 497636

FERRANTI
 Computer Systems

The Computers with MOMENTUM



CTL Computer Technology Limited

an I.T.L. Information Technology Company

ELECTRONIC BANKING

A strip of plastic incorporating a data chip could soon replace the credit card in our daily business transactions . . . Jack Gee reports

France plays its 'smart card' to take Europe and US by storm

EXCITING new prospects for the "smart card" — a rectangular strip of plastic incorporating a data chip — are opening up this autumn as it is put through its paces in a broad gamut of daily uses in Europe and the US.

Ever since Roland Moreno, a young French computer engineer became fascinated 10 years ago by PROM (Programmable Read Only Memory) chips, France's micro-electronics specialists have stayed in the vanguard of the smart card's development.

Moreno patented the inclusion of this type of miniature memory device in portable objects under the name of the Innovatron firm in 1974. Since then the French have never looked back.

At Vélizy, a Paris suburb, 300 households are ordering merchandise, booking railway tickets and paying their bills by inserting chip cards into "readers" linked to video terminals in their drawing rooms.

In the US the food stamp system of relief for the disadvantaged is soon likely to be supplanted by a French smart card. France's Telecommunications Authority is installing telephone booths in which the card will replace coinage.

And the time is certainly not far

off when many countries will use smart cards as passports and identity documents.

The survival of millions of cardiac pacemaker carriers and sufferers from chronic illnesses could be guaranteed when doctors and hospitals are equipped to interpret smart cards embodying the patients' medical histories.

The smart card will begin banishing cheques from many sectors of our banking system within two or three years if trial runs now under way in three French cities prove successful. The card's first role in our daily lives will be as a more flexible and secure instrument for making transactions than the credit card which most of us carry in handbags or wallets.

As customers of banks and credit organisations, we are all familiar with data-bearing cards. They are pieces of plastic on which information is embossed, punched or loaded in the form of a magnetic stripe.

But the magnetic card suffers from serious shortcomings. A thief can use it with impunity until the theft is reported, and millions of shops are advised that it is no longer valid. The limited information which it contains can also be forged with relative ease.

In contrast the smart card — a

tiny computer with its own memory — is useless in the hands of a thief who does not know the owner's secret code. Only he or she can use it for instant communication with a bank account, not just to draw cash but to pay bills, transfer funds and obtain information about balances.

The chip card combines the advantages of the wallet, cheque book and traveller's cheque. It can be "loaded" with a precise sum of purchasing power which is "unloaded" by stages from its memory each time it is used to make a payment.

One of the biggest advantages of chip card technology will be to reduce to manageable proportions our society's mind-boggling consumption of paper. But the revolution which the new card is introducing into banking methods is not universally welcomed.

Many banks have invested on a big scale in automated teller and cash dispensing machines, electronic cash registers and other equipment. They are understandably reluctant to abandon this costly hardware right away, even though they recognise that the smart card will be more economical in the long run.

The French electronics industry has solved this problem. Its first

mass produced chip cards are being manufactured with magnetic stripes for use in standard types of video terminals. Interface equipment is also being developed to enable the twin-technology cards to be used with existing machines.

The first full-scale field trial of smart card banking is now in full swing in three French cities where cards designed by Philips Data Systems, CIT-Honeywell Bull and Fliconic Schlumberger are under testing.

A group of French banks have joined forces to promote this experiment under the name IPSO. Barclays is also a partner in the venture. Philips is issuing 50,000 cards at Caen, Normandy where 250 shops and banks are being equipped with point-of-sale terminals.

The same number of cards and terminals are being used simultaneously at Lyons where Fliconic supplies the cards. In Blois, a market town in the Loire Valley, 20,000 cards produced by CIT-Honeywell Bull are being distributed for use in 250 terminals.

The Fliconic card is exceptionally simple and uses only a single integrated circuit with a wired program which cannot be modified. This makes it less flexible than those designed by its compe-

titors but cheaper to produce.

IPSO's purpose is to familiarise the ordinary citizen and merchant with a society in which cheques and cash will play a steadily decreasing role. Cash represents 80% of payment operations and 50% of turnover in the French economy.

Cheques, whose use is increasing annually by 10%, account for 90% non-cash operations. Last year, three billion cheques were issued at a handling cost of 40p apiece, often less than the sum for which they were drawn.

Britain is among countries which are showing lively interest in the IPSO venture. So much foreign interest has been generated that bankers have created an International Association for Microcircuit Cards. Based in Paris, its other members beside Britain and France are the Netherlands, Belgium, Denmark, Austria and — more than a coincidence — American Express. Other credit card organisations are soon expected to join the banks in efforts to endow the smart card with worldwide acceptance.

The smart card's memory contains a range of security devices which are not available in any existing transactional card. It provides the correct correlation of the owner's identification number and the code of the organisation which issued the card.

A secret chip code is entered during manufacture and is permanently recorded on the chip. As a further anti-theft device, the card embodies a self-destruct function. This operates after three attempts have been made to use the card with an inaccurate identification code.

A transaction with an IPSO card is between three and five times as fast as payment at a cashier's desk by cash or cheque. The retailer enters the amount of the purchase on a point-of-sale terminal. The customer introduces his card. Then, shielded by a specially designed screen, he taps out his personal code on a separate digital pad unit. If the algorithm is cleared by the computer, the transaction is valid and a printer delivers a receipt.

While shopkeeper and customer are performing these simple steps, the transaction is recorded on the card's memory and on a cassette or cartridge at the point-of-sale terminal. The cassette is a cartridge of 8 kilobits or more of non-volatile erasable memory.

Close on the heels of the IPSO trial, the smart card will soon make its appearance in French telephone booths. It will make an important contribution to French Telecom's efforts to solve the problems of fraud, vandalism and the cost of collecting 16,500 tons of coins a year.

The chip card will make phoning particularly simple for users who often run out of change while making long distance calls.

France's Telecommunications Authority has been experimenting for the past two years with a simplified card loaded with a fixed sum in cash. About 30 booths in Paris and at an Alpine ski resort have been equipped to accept this card which is thrown away when its cash supply is exhausted.

The trial has convinced French Telecom of the popularity of telephone credit cards. Surveys have revealed that 20 per cent of phone booth users account for 80 per cent of receipts. These regular customers could provide a market for a smart credit card and could be identified and billed at regular intervals in the same way as domestic and office subscribers.

Plans are ready to install 2,000 booths designed to accept smart cards by 1984.

While France's electronics engineers have been blazing trails for the smart card, her salesmen have been active in stimulating interest abroad, particularly in the US, the biggest potential market.

First Bank System of Minneapolis, which recently began a trial of Teletel, France's interactive videotex, in the homes of farming customers, is about to issue French smart cards to a selected group of clients who will be able to conduct telepayments operations from their sitting rooms.

Intelligence, the promotional arm of the French Telecommunications Authority, is now in the final stage of negotiations with the US Defence Department to test smart cards as a substitute for admission passes to Post Exchange stores.

The US Department of Agriculture is preparing a test of French technology in Michigan which could lead to the replacement of food stamps issued to poor families by the smart card. The Department estimates it could save much of the 600 million dollars lost through fraud and misuse each year out of 10 billion dollars worth of stamps issued. It could make even bigger savings on paper processing, storage and clerical overheads.

The Pentagon is also looking into the feasibility of replacing the GI's traditional "Dog Tag" with a French smart card device incorporating his service, pay and health records.

Roy Bright, a veteran of British telecommunications and star promoter of Prestel, now occupies a commanding position in these French ventures as managing director of Intemetique, Bright says: "The opportunities for the smart card are unlimited. Our experts are thinking up new applications all the time."



"Dear bank manager, due to a home computer error . . ."

The country's biggest think-tank

Compec '82 is about ideas, decisions, short and long-term planning. It's the largest computer exhibition in Britain and it's designed specifically for the people who use computers: D.P. professionals and general management alike. Compec '82 is the one place you'll find the whole range of products and services available in today's professional computer market. Complete systems, processors, components and subsystems, peripherals, terminals, communications equipment, ancillaries, consumables and services of every kind. Plus a special emphasis on software. In Compec's Software Village.

The Computer Exhibition, Olympia, London
November 16-19, 10.00-18.00
10.00-16.30 (final day)
Entrance to Compec '82 is by registration
at the door and costs £3

COMPEC '82

INDUSTRIAL DEVELOPMENT

Jim Horsley opens our three-page feature with a review of assistance schemes in an economically depressed area

The North-West has the people, the sites — it still wants the firms

ON THE BAROMETER of economic recovery there are few readings available from the North-West to dispel the gloom of unemployment which currently averages at around 14% and peaks at 25% in places. Many observers see the one possible stimulus for economic growth and recovery as coming from the computer industry.

Roy Smith, head of the Department of Industry's industrial promotion in the North-West, comments: "We are actively encouraging the computer industry to come to the North-West. It is only computer companies from this sector that are looking around for new sites at the moment."

"The computer industry is not going to mean a dramatic change for the 250,000 people who are unemployed in the North-West at the moment, but we need to be in this business to build the foundations for a better future."

The North-West includes the industrial centres of Merseyside and Manchester, and has a population of 6.67 million (1980 figures), double that of Wales and the same as Scotland. But what can it offer new technology industries? Smith believes that an important attraction for companies is the region's infrastructure.

"We have the locations with

access to universities and the sort of facilities that people in the computer industry require. We also have the places where people from that industry want to live," says Smith.

Warrington and Runcorn Development Corporation was the first authority in the country to establish a commercial Science Park, specifically geared to attracting science and technology-based industries. Following the success of that venture in attracting such companies as DEC and Data General, other parks are now being established within the Warrington area and further afield.

An attractive environment and good road, rail and air communications have been vital aspects in the success of the Science Parks. Local authorities are also offering more lucrative benefits to bring in new industries.

Because it is an area of high unemployment, a large part of Merseyside has been designated a Special Development Area by the government, while two other districts — the West Cumbrian coast and an area around Wigan and St Helens — have been given Development Area status. This means that special grants and schemes are available to some companies setting up in these regions as a way of stimulating new jobs and economic growth.

The problem for companies wanting to establish operations in the North-West is to identify which scheme they qualify for and what kind of financial assistance they can expect. As Smith points out, there are about 40 schemes in

operation, and financial aid is also available from the EEC, from local authorities and from private organisations such as the Anglo-American Venture Fund.

Special Development Areas, or SDAs, offer the greatest financial help, while Development Areas offer less. Regions with no classification can offer financial incentives from central or local government funds which are usually much further down the scale.

Another important factor in gaining financial help is the nature of the business. In some areas, such as Manchester, the emphasis is on manufacturing industries, and assistance is geared towards plant, machinery, bricks and mortar. In other areas, the emphasis is on service industries, and financial aid is available for new staff, premises and the development of business projects.

The easiest way of assessing the grants that are likely to be available is to examine the schemes available from the EEC and the Department of Industry, and then contact the appropriate local authority to find out whether private organisations such as the Anglo-American Venture Fund are prepared to provide financial assistance.

The European Regional Development Fund, established in 1975, provides financial support for the industrial sector, for artisan activities and the service sector as well as for infrastructure projects. Of more direct relevance to high technology industry is the Community Support Mechanism in the Field of Data Processing. This is available to any company in Europe. The scheme aims to create a stronger and more competitive European DP industry and more efficient applications of data processing. Funds are available for feasibility studies, development and pilot projects.

The grants available from UK central government are geared specifically towards manufacturers and service companies, and are graded according to the status of the area selected. For example, grants are available for up to 22% of fixed asset costs for a manufacturer in an SDA. In a Development Area that grant falls to 15%.

For service companies, assistance is paid according to the number of jobs preserved or created with a maximum figure of £8,000 per job in an SDA and £5,000 per job in a Development Area. Grants are also available for essential employees moving with their work, and for feasibility studies to decide whether the move would make economic sense.

There are also various types of loans available through European investment banks.

With particular relevance to the computer industry, there are various national grants available for such projects as the development of micro-applications, CAD/CAM, and the creation of products and processes.

Local authority assistance varies according to the authority, and also on the status and economic state of the region. In the Warrington area, for example, the emphasis is on providing facilities rather than financial aid.

Merseyside County Council has a service scheme in addition to the Department of Industry grants. This was designed to help existing

companies in the area expand, but is also used to attract new companies to the region.

The service scheme is aimed at companies with less than 100 staff. It is designed to provide a 30% wage subsidy for people recruited in the Merseyside area, and can last for a maximum of 39 weeks in exchange for a commitment by the company to rent, purchase, build or extend premises, or to purchase or lease plant or machinery.



Science Parks, like this one at Birchwood, have proved attractive to science and technology based companies.

NCR INTER-KNOWLEDGE MEANS GETTING YOUR MICROFICHE BACK SHARP

NCR can read your mind like a microfiche. During the past ten years, we've studied our customers' needs in great depth. So we know exactly what you want from COM microfiche. NCR call this close understanding of your business 'Inter-Knowledge'. It means we appreciate that speed is always of the essence.

That you want a versatile, cost-competitive service matched to your needs. And that every microfiche must be needle sharp, whether copied from tapes, discs or printed matter.

Of course, the fact that NCR manufacture COM microfiche equipment ensures our Bureau's are first with the latest technical improvements too.

So whatever computer system you use, you'll find your nearest NCR COM Centre at London, Birmingham, or Manchester your kind of bureau.

Indispensable to the decision-making process. Please contact me with full details of the NCR COM Bureau service and how it can benefit my business. Send to: Jon Weller, NCR Limited, St. Alphage House, 2 Fore Street, London EC2Y 5DS. Or telephone your request by calling either Jon Weller on 01-638 6200 (London), Peter Morris on 061-833 0111 (Manchester), or John Drew on 021-742 2311 (Birmingham).

Name: _____
Title: _____
Company Address: _____
NCR
MICROGRAPHICS

01-638 6200

INDUSTRIAL DEVELOPMENT

FOR satire to be effective, it must contain at least a grain of truth. The BBC satire programme *Not the Nine O'clock News* parodied the Welsh Development Agency's commercial on the theme, "Made in Wales" with a list of firms which had "Failed in Wales". This is as much a warning to firms considering relocation, as it is a humorous observation in its own right.

Taken out of its immediate context, the "Failed in Wales" sketch illustrates the fact that regional assistance in its present form may not be a panacea for the nation's industrial ills. Whitehall is certainly conscious of the role that industrial development can play in the national economy, however.

When unemployment was hovering around the 5% level, the UK was covered in a patchwork of regions directly supported by central government.

With employment prospects uncertain for even three times that 5%, the blanket of regional aid offers less protection. Seen by the critics of the present government as the severing of aid from deprived regions, the reshaping of the industrial development "package" rationalises the incentive schemes inherited from previous administrations.

Far from being aid available purely at a local level to assist the areas where unemployment was most deeply rooted, Whitehall's development schemes had become so encompassing in their scope that they came to dominate the Callegnan government's industrial strategy for the whole economy.

The reduction of public expenditure was a primary objective in every Whitehall ministry after the return of the Conservatives in 1979 — and the Department of Industry under Sir Keith Joseph was no exception. There was the prospect of aid to the regions reaching £600 millions by the end of 1982, if the proposals of a 1978 White Paper had been implemented. Not all of that figure would have been statutory grants paid without question.

At least one-third of the total would have been allocated under "selective assistance" schemes of the 1972 Industry Act. But the radical pruning of areas qualifying for assisted status involved more than budgetary considerations. There was an opportunity to discriminate positively in favour of those regions where the need for assistance was most urgently required. In a system of investment aid where Special Development Areas (SDAs) qualified for grants which were only 2% higher than those in areas with basic Development Area status, there was little incentive for an employer to relocate where deprivation was greatest.

To have withdrawn regional as-

Strategies for industrial rebirth depend on the politicians' colours

David Casey examines some of the expediencies behind assistance policies



Just over a year ago this was the site of BSC's former East Moors Works. Now the wasteland is being redeveloped by the Welsh Development Agency.

istance from key areas overnight would have had a catastrophic impact on employment. The target reduction of some £220 million could not be achieved in full until the 1982-83 fiscal year if a degree of stability in industrial strategy were to be preserved. Sir Keith Joseph's plan for industrial assistance was phased over three years — the areas currently designated for aid represent the Thatcher administration's view of a policy for the regions.

Companies moving into Special Development Areas (SDAs) qualify for the maximum capital grant of 22% — a figure which has remained unchanged since this concept of "special" status was first introduced. With grants in the Development Areas (DAs) being cut from 20% to 15%, the differential has been increased to a level which counteracts the disadvantages of relocation in Liverpool or Ebbw Vale.

Paradoxically, if a company were to be influenced by the 5% cut in grant aid, its directors would be improving long-term employment prospects more by not relocating. A business whose viability is so finely balanced would have a higher chance of failing should any one economic factor move against it. If it had succeeded in expanding through a capital grant, bolstered further by selective employment assistance, the cost of failure would be measured in terms of even higher unemployment.

A consequence of the regional aid programmes of the late 1960s was that firms immediately outside zones designated as DAs were threatened. The dividing line between assisted and non-assisted areas had to be drawn at the expense of investment "blight" for those companies failing to qualify. There are examples of manufacturers building their second plant a quarter of a mile away, over the border in an SDA, and linking the sites by road transport.

The criterion for an area to receive assistance is a hard core of structural unemployment. Local skills are no longer required because the dominant industry has declined. With the running down of shipbuilding and public sector

steel-making, this particularly insidious form of unemployment is more entrenched now than it has been at any time since regional aid was first introduced.

It is easy for public funding to be offered to a company in these acutely affected regions: it is less easy to alleviate the unemployment if a firm fails after over-generous support. Development authorities in the UK strenuously maintain that a company's financial viability is scrutinised before assistance is given. But a publicly funded source of aid might be influenced by the prospect of short-term job creation rather than employment over a two-decade timescale. A fall in the total number out of work would be a bonus for a party at the hustings in the next 12 months.

Organisations on the fringe of the public sector are subject to similar conflicts of interest when they encourage firms to relocate. In the South Wales steel closure area, for example, the pressures of unemployment are horrendous. BSC (Industry) is a subsidiary of the British Steel Corporation specifically charged with creating new enterprise wherever steelmaking is withdrawn.

The organisation is deeply conscious of the long-term impli-

cations of its role, and stands aside from the assessment of its "prospects". Using the funds at its disposal, BSC (Industry) commissions independent accountants' reports which are taken as the basis for funding by public and private institutions in the UK, and EEC finance. Certainly in its Welsh activities, BSC (Industry) has a good track record to date, with computer and electronics companies surviving without further assistance.

An ironic success story for the steel industry in Wales has been Bowstrings Computer Services, now a viable distributor of Wang minicomputers. The directors of the company are all ex-steelworkers with several years' experience of computer systems. When the East Moors Works in Cardiff closed four years ago, the three men were presented with the task of calculating redundancy payments for the plant's 3,100 workers.

The atmosphere of stagnation and decline that the current jobless figures may suggest is an unlikely setting for stimulating new industrial development in an economy. There is the risk that a manufacturer in the high-technology field could be dissuaded from any major capital investment given the pes-

sistic forecasts from the Bank of England and independent economic observers. It is, however, in those areas of the UK economy which have suffered most from the stresses of the post-war years that the future of our high-technology industries appears to lie.

Important though the political considerations of regional policy may be for the government, a company preparing to invest its capital and resources in an assisted area is more concerned with stability and the prospect of assistance continuing virtually unchanged. Would a financial plan developed today on the basis of the Conservative strategy prove worthless if a Labour government, or one controlled by the Alliance, were to come into office before May 1984?

Four decades of regional policy indicate that an incoming government makes relatively small amendments to the regional policy of the administration it replaces. Borough councils in districts downgraded by Sir Keith Joseph from Development Area status might take a different view, but the 1979 changes involved an adjustment of scale rather than a radical re-appraisal of technique.

With a product having a high value-to-weight ratio — and therefore less constrained by transport costs — the computer industry is ideally placed to use up offers of assistance wherever the terms are most attractive.

Industrial assistance is inevitably an emotive subject, heavily charged with political expedience. As soon as one sector of the economy receives more favourable treatment than another, there is a change in the balance throughout the whole economy, and not just within the area where assistance has been provided.

The trend since the early 1970s — the 1972 Industry Act was the turning point — has been towards a package of grants, tax incentives and "selective" assistance. It is this package which appears to be losing whatever effect it may have had.

An uncharitable view might be that the policy implemented by post-war governments has not worked. Jobs are being lost from many of the assisted areas at a higher rate than Whitehall aid is stimulating new employment.

Rather more serious is the competition from other countries in Europe. The Irish Republic, with its generous tax incentives, has certainly attracted funds which would otherwise have been invested in the UK. Similar incentives, although smaller in scale, are taking Japanese and US investment into Scandinavia, France and Greece.

The form of the aid available from central government will certainly have to change if sufficient new investment is to be attracted into the UK from overseas. It must satisfy Mrs Thatcher's policy objective of minimum public expenditure, while providing maximum opportunities for the creation of jobs with long-term prospects.

PRODUCTS



The KAS Perfo-Binder.

Bound to keep papers secure

KAS Graphics' Perfo-Binder is a compact machine which can be used to bind documents with a total thickness up to 2 inches in a simple, secure and neat way at very low cost, say the manufacturers.

This new method of binding is by the automatic production and insertion of sturdy nylon rivets of exactly the correct size for the bundle of documents.

It means that important office papers, documents and records can now be bound into sturdy volumes for permanent keeping and instant reference in 30 seconds. Since the plastic tubing used for the binding is heat moulded the binding is strong and flexible, eliminating the tearing of sheet protectors holes when binding. For instance, computer printouts. However, the rivets can be removed and papers added and rebound.

The unit can be used both for drilling or for a combined drilling/binding operation. A quick set guide assures consistent hole spacing every time. It is inexpensive to use — KAS Graphics estimates 1p per inch thickness.

Kemp Application Sales, (CW), 46-50 Coombe Road, New Malden, Surrey KT3 4QJ. Tel: 01-942 2248.

Low profile on power supply series

AUTOMATION and Power Systems is keeping a low profile on its newly-launched 130 series PSU.

The latest in the line of units with off-the-shelf availability, the 130 unit has a depth of two inches.

The Brighton-based firm developed the switch mode unit on a custom made basis and now the 130 series is claimed to have established a reputation among electronics systems designers for compactness and flexibility.

The multi-output configuration has a range of ± 5 volts, ± 12 volts and 24 volts. The outputs can be semi or individually post regulated and there is over-voltage protection on one or all outputs.

Secondary protection is available as an optional extra. Other extras offered include power failure detection and indication, remote sensing on the main output and adjustable auxiliary regulated output. Individual outputs may also have overcurrent protection. The units conform to all major international safety specifications.

The flexibility of the 130 unit also extends to its shape. The APS design team will shape dimensions of the unit to fit the available space.

APS specialises in standard and custom made power supply units.

Automation and Power Systems (CW), 6-8 Forewood Drive, Portlough, Sussex, England. Tel: (0323) 897469.

Powerful range of raster scan graphic displays

GRAPHICS and CAD systems specialist Calcomp has introduced a powerful new range of raster scan graphics displays called Vistagraphics 4000.

Utilising dual MC68000 16-bit microprocessors and incorporating a 19 inch colour or monochrome display, Vistagraphics 4000 is available either as a standalone graphic computer system or as an intelligent display terminal for use in a distributed graphics processing environment.

The range is designed to suit such applications as CAD/CAM, process control, mapping, engineering and scientific analysis, simulation and training, and command and control, states the company.

"Initially," says Roger Hewitson, Calcomp managing director, "our intention is to offer the Vistagraphics 4000 range for sale primarily to the OEM market."

"Our pre-launch marketing ac-

tivity," he adds, "has shown us that there is tremendous enthusiasm from system integrators for a product with the advanced features provided by this new display range and a number of negotiations are already well advanced, even at this early stage."

The Vistagraphics 4000 range comprises three series — the 4200, 4300 and 4400 Series — covering 11 different models, all of which share the same basic software, hardware features and user interfaces, providing compatibility across the entire range and a choice both of display resolutions and the number of simultaneously displayable colours.

While the bottom of the range 4200 Series has a display resolution of 640 x 512, refreshing at 60 Hz, the mid-range 4300 has a 1024 x 768 resolution refreshing at 45 Hz. Both of these, says the company, are non-interlaced displays.

At the top end, the 4400 Series



One of Calcomp's Vistagraphics 4000 series of raster scan display systems.

provides 1024 x 1024 display resolutions refreshed at 60 Hz, interlaced. All three series can display up to 256 colours simultaneously, these being selected from a palette of 4,096 colours.

According to Calcomp the Vistagraphics 4000 family includes a number of state-of-the-art features as standard which provide significant advances over other raster

scan graphics systems.

For example, the new displays all utilise dual MC68000 microprocessors to provide efficient, high speed operation. One of these is used as a system processor, handling all I/O functions and display list management.

Calcomp (CW), Cory House, The Ring, Bracknell, Berks. Tel: (0344) 50211.

Fast updating for microfiche reader

REALIST's latest microfiche reader, the 414, has two new features — a wood grain design and interchangeable carriers for fast updating.

This full-size COM and source document reader has a modern wood grain finish which blends in with the decor of most offices.

The Realist 414 is available in either a 110-120 volt or 220-240 volt model. The new reader is marketed by Realist dealers in Europe, Central America, South America, Australasia, Asia, the Middle East and Africa.

Realist makes it possible to create the reader for any application. The 414 can be purchased now, with all the standard features, and the options can be added later. This makes the system flexible and easy to adapt to new requirements.

The newest feature is the interchangeability of the Realist 414's carriers. Anyone can remove the standard carrier and insert the optional 4 x 6 dual carrier — and that means no costly service charge.

Once in position, the 4 x 6 dual carrier allows the operator to cross-reference two different fiche simultaneously.

The 414 also has instant microfiche location with the exclusive Hi-light indexing system. A unique point of light marks the precise location on the index grid, thus giving high-speed access to the exact frame.

Single or dual lenses for the 414 are interchangeable and are available in 24X, 42X or 48X magnification. A flip of a lever is all it takes to change the magnification on the dual lens unit. Each reader is equipped with a dual lens holder that allows for easy conversion to a dual lens system at any time.

The 414 is claimed to give constant focus control with less adjusting and easier viewing. The lens system floats on the upper carrier glass.

A transparent yellow line guide on the screen helps zero in on needed information without obstructing the operator's view.

Lamp changes and carrier cleaning are simple to perform on the 414. A module drawer, located in front of the reader, contains the lamp, transformer and carrier and is easily removed.

Realist Micrographic Systems (CW), Megal Drive, Menomonee Falls, Wisconsin 53051. Tel: (414) 251 8100.

First in videotape series

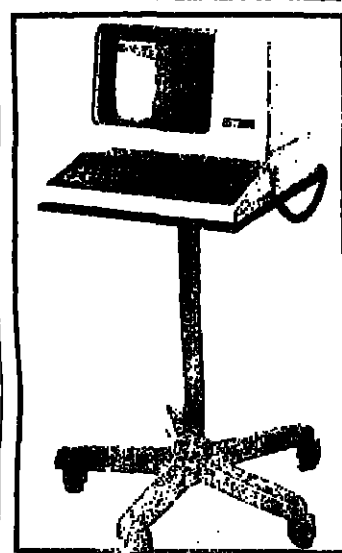
THREE educational videotapes now available from Amdahl in the UK are the first in a series planned to maintain state-of-the-art awareness of the latest product/hardware-software developments in the IBM/PC/MS mainframe area.

The aim is to enable data centre staff to benefit from a full education package which to equal would otherwise need expensive research or involve time-consuming absence at special courses. Full written back-up material is provided.

The tapes so far produced, under the general title of Keeping Current, are: "ACF/VTAM — Selected Topics"; "VSAM Performance"; and "IMS/VS Performance, Selected Releases", dealing with the results of studies of current releases.

Prices of these first tapes are respectively £220, £220 and £190. Further titles are planned for release over the next few months.

Amdahl (UK), (CW), Viking House, 29-31 Lampson Road, Hounslow, Middlesex TW3 1JD. Tel: (01) 572 7383.



The Galid trolley.

How to keep your desk uncluttered

A SIMPLE solution to the problem of a VDU or typewriter or Prestel unit cluttering up further an already cluttered desk, in the form of a made-to-measure versatile trolley, comes from Galid.

One basic trolley can be customised to the specification of the user through the use of an individual footprint to match up with the base of a VDU and keyboard or similar equipment ensuring secure location of the equipment. The trolley is also designed to ensure that the VDU keyboard is located at the correct operating height.

The trolley has a robust construction and the urethane 5-star base ensures that it will retain its elegant appearance, says Galid.

The trolley is supplied in easy to build knock-down form and Galid says that by carefully following the assembly instructions it will give years of service.

Each trolley is supplied with a length of flexible conduit and fixing clamp. This ensures that the interface and power cables on computers are neatly kept together when using the trolley for a VDU.

An update service will also be available so that when a user changes his VDU or other equipment he uses the trolley for Galid can supply a replacement (footprint at modest cost).

A five-year guarantee against manufacturing defects is also given with the purchase of each trolley.

The recommended end-user price for the trolley is £69.50.

Galid (CW), 1 Bliton Road, Rugby, Warwickshire. Tel: (0788) 74443.



A lot of computer systems just can't cope when it comes to change.

But a Logitek system can — because we offer upgradable Altos processors and peripherals — all compatible, plus application software through 80 dealers nationwide.

So don't be left behind with extinct systems.

Choose logically.

LOGITEK

Sales Office,
Logitek House,
FREEPOST, Wigan,
Lancs WN6 0BR
Tel: (0257) 426644

Data Wiring

Complete Cabling and Wiring Experience

On-Site Installation

Quick Delivery—Efficient Service

DATUS

Reading, England

(0734) 730233

TLX 847423

D.E.C. SYSTEMS & PERIPHERALS

WHY BUY LOOK-ALIKE? WHEN EVETS SELL THE REAL THING — AT LOOK-ALIKE PRICES

VT 100 (including-AVO + Printer Port) £960 - ex stock

Additional Special Educational Discount for all Universities and Colleges

Other D.E.C. equipment available at discount prices include:

11/23; 11/23+; 11/24; 11/44+VAX

eg: 11/23 with 128kb memory plus 2xRLO2 (10mb disk drive) 4 serial lines, power supply, cabinet

only --- £10,000

Trade mark of Digital Equip. Corp.

EVETS (0332) 363981

Computers Limited 125-125 Green Lane Derby DE1 1JL

BOOKS

What every computer trainee needs to know

Concise Encyclopaedia of Information Technology, Adrian V. Stokes (Gower), £17.50. WHILE debate continues over whether Information Technology (IT) Year has benefited the computer industry in real terms, few could argue that it has not been at least worth its weight in books.

Publishers have seized the chance to produce many volumes that were overdue for the industry anyway, under the IT Year banner, which will help to guarantee publicity for the launch and subsequent display in shops.

It has also meant that many books that might not otherwise have seen light of day have been published, but Adrian Stokes' encyclopaedia definitely belongs to the former category.

The majority of dictionaries and encyclopaedias of computer terminology stop short at the slang terms in common use in DP departments, and also ignore names of products from manufacturers, but Stokes includes many which



STOKES... Information every trainee should have.

have come to represent a type of product more generally - CAPS for example.

Where necessary, the explanation is illustrated by a diagram and/or an example, but in most cases the definition of the item is so clearly described that the reader has no need of either.

One aspect of the book I found somewhat confusing is that some acronyms and abbreviations appear in both the main section and in Appendix A, which is

officially for acronyms and abbreviations, but not consistently. A reader who is unaware of this might well give up after searching through only one section, or be under the impression that they are all mixed in with the main section.

This is an excellent, compact book filled to the brim with the sort of information that every trainee in the computer industry should be handed on day one.

Maggie McLening

Fails to dispel the mystique of programming

Mastering Computer Programming, P. E. Gosling Macmillan Master Series 212pp. £8.99 hardback. £2.95 paperback.

THE microcomputer revolution has provided the stimulus for a flood of books on the Basic programming language. Despite its title, this is one of them.

As I know from personal experience, explaining even the basics of computing to the layman can be extremely difficult. Unfortunately, Gosling's book is unlikely to dispel the mystique which surrounds the subject.

Although the book is supposedly suitable for individual study or classroom use by, among others, someone who has just bought his first computer, I feel it is rather advanced for the man in the street, and more suitable for the college student. Nonetheless, the author's approach is practical and his style clear and readable.

He begins by explaining what a computer program is, and introduces machine-code and assembler programming. ACE, a teaching language invented by the Open University, is used as an introduction to high-level languages. The Basic language is dealt with thoroughly in 160 of the book's 212 pages.

One of the difficulties confronting authors of Basic textbooks is which of the many versions of the language to use. Gosling avoids this problem by not using any particular Basic in the book.

Compilers and Interpreters is a particularly useful chapter, as is Bug Hunting, which covers many of the mistakes beginners are prone to make.

Only three of the many other programming languages (Fortran, Cobol and Pascal) are dealt with.

Alan Stewart



Introduction to data dictionary systems

Developing a Data Dictionary System, J. Van Duijn Prentice-Hall, 204pp.

A DATA dictionary can be employed in two basic ways. First, it may be used purely as an end user facility to help computer users sort out their data management problems. Second, it may be embedded within a database system where it acts as a primitive building block that supports the overall functioning of the DB.

Accepting the positive utility of data dictionary systems, techniques for their development should be of interest to many who are likely to become involved with this type of tool. This text describes the various mechanisms and procedures needed to develop a data dictionary system (DDS).

Chapters 1 and 2 cover introductory and historical material relevant to an understanding of data management systems and databases. The two following chapters then introduce the idea of a DDS, chapter 3 defines the meaning of the term while chapter 4 examines the potential benefits of using a facility.

In chapter 5 more detailed descriptions of the function, their contents and types of DDS are presented. This is followed by chapters which outline the initial factors to be considered and the steps involved in implementing a dictionary system. Two approaches are described: building an in-house system from scratch and installing a commercially available package. Having outlined implementation techniques the author then discusses an example of an operational system developed via the in-house approach.

Typical applications of a data dictionary system are dealt with in chapters 9 and 10. Two important aspects are covered: system development (analysis, design and implementation) and system maintenance.

The final section provides an overview of some commercial data dictionary systems. An economical list of selection criteria is provided to help potential users select an appropriate package. Some of the major characteristics of a selection of the available products are then described. The section concludes with a detailed case study of the UCC TBN Data Dictionary Manager.

This book provides a complete introduction to data dictionary systems and how they are used.

Philip Barker

Incomplete treatment of Pascal

Programming Microcomputers with Pascal, M. D. Beer, Granada Publishing.

THE flood of books on Pascal has recently become a Niagara. This text is one of the latest additions. To be successful in competition with established texts, new ones must offer some particular new tuition method or useful exposition of a comparatively neglected aspect of Pascal programming.

The market niche this text aims to occupy is not empty - which means that the text is in competition with a number of books already catering for microcomputer programmers, especially UCSDS system users.

One of the first problems with this text is that although it professes to be aimed at the microcomputer user, it only refers to the UCSDS implementation and this mainly in appendices. In most respects the content is typical of a conventional exposition of Pascal.

Secondly, the treatment of the language is incomplete. There is no discussion of pointers for example. In a book aimed at the microcomputer user this is a serious error. Thirdly, there are too few examples with answers given. Fourthly, although the discussion is generally accurate it does not go far enough especially in explaining the pitfalls of using some constructs.

On a more positive note, the book does include a sensible discussion of some basic ideas of program design and structured programming. A particularly useful chapter deals with small controller-type microcomputer applications.

John Cookson

Compiler construction

Pascal Implementation - The P4 Compiler, S. Pemberton and M. C. Daniels, Ellis Horwood.

THIS book is concerned with compiler construction but with a different emphasis than other texts in that it is devoted to a case study of an actual system - the Pascal-P compiler. It is in two volumes, the first is effectively a commentary on the second which is the full listing (in Pascal) of the compiler and its associated assembler/interpreter. This separation makes it easy to refer to the relevant portions of the listing while reading the main text.

The main volume starts with an all too brief overview of compiling and then in Part 1 considers the compiler. The areas examined are input and lexical analysis and semantic analysis and code generation. The corresponding components of the listing are identified and commented upon, some detail and original design, removal of inefficiencies and possible improvements are discussed in the notes.

Head of Computer Science, University of... (partially obscured)

PROPERTY

A DEVELOPMENT BY FRANTHORNE INVESTMENTS LTD.

CROYDON

35 Wellesley Road
A Major Office Building of 309,000 sq.ft. To Let

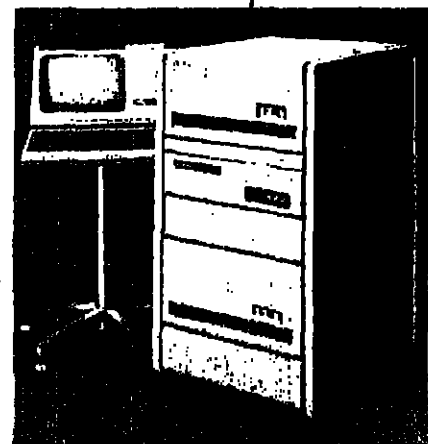
- | | |
|-----------------------------------|---|
| Prime Croydon Location * | * Full Air-Conditioning |
| Advanced Technological Design * | * Suspended Ceilings with Recessed |
| Energy Conserving Installations * | * Self-Regulating Lighting |
| Reflective Aluminium Cladding * | * Solar Shielding Double-Glazing |
| Vehicular Set-Down Facilities * | * Private Car Parking |
| Goods Lift * | * Ten Passenger Lifts |
| Two High Quality Entrance Halls * | * Carpeting to all Office Areas |
| Maximum Office Flexibility * | * Well Appointed Toilets on all Office Floors |
| Standby Generator * | * Covered Storage Area |

**ALLSOP
& CO**

21 Soho Square, London W1V 6AX
Tel: 01-437 6977. Telex: 267 397



THE PDP-11/23 PLUS



GRRR!

When Digital designed the flagship of their LSI-11 bus range, they packed in quite a plus - that's a massive 4 Megabytes of machine memory. That lets you run top end minicomputer software like RSK11-M* Plus and RSTS-E* and of course RSX11-M* and RT11* on the extended 22 bit LSI-11 bus. And that's a first for a micro based system in this price range. But if you're worried about grabbing a tiger by the tail, don't. The PDP-11/23 Plus is handled by Rapid Recall. Phone them today and you'll go wild about their prices and ex-stock deliveries - plus all the support you need to master your system from day one.

Rapid Recall

AUTHORISED
digital
INDUSTRIAL DISTRIBUTOR

Trademarks of Digital Equipment Co.

Rapid Recall Limited (Southern)
Rapid House, Denmark Street,
High Wycombe, Bucks.
Tel: (0494) 26271 Telex: 837931
Rapid Recall (Northern)
28 High Street, Nantwich, Cheshire.
Tel: (0270) 627905 Telex: 36329

CONTACT XENIA WHITE—FOR ADVERTISING RATES TELEPHONE: 01-661 8671

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

APPOINTMENTS

Computer Weekly
Classified Department
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS
Tel: Direct Client Sales
01-861 6060
Consultancies Sales
01-861 6787
Telex: Comweek 882084 Biepra G

Direct client sales
Telesales Manager
Shobhan Gajjar
Field Sales
Manager
Mike White
Consultancies Sales
Assistant manager
Julie Hannaford-McNally

Regional Offices
Birmingham/Bristol
Vic Sheret
021-356 4838
Manchester/Glasgow
Owen Kelly
061-872 8881
Production
Steve Lever
01-861 3104

General copy deadline
3.30 pm Monday prior to
Thursday publication
Top Jobs deadline
4 p.m. Friday prior to
Thursday publication
Colour deadline
4 p.m. Friday prior to
Thursday publication

Rates
£27 per s.c.c.
Quarter page
Half-Page
Full Page
(19cms x 3 cols) £1175
(19cms x 7 cols) £2079
(39cms x 3 cols) £1983
(39cms x 4 cols) £2423
(39cms x 7 cols) £3900

Box nos. £5 extra. Address back to c/o Computer Weekly, Classified Dept., Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS

CONTRACTS SYSTEMS & PROGRAMMING

IBM DOS/VSE COBOL & CICS

Analyst/Programmers
HERTS

Development of commercial applications, commencing A.S.A.P. for 6 months. REF: N824

IBM VM/CMS

Systems Programmer
HOLLAND

New Year start, for 3-6 months duration. REF: N826

IBM 8100

Programmers
UK/ABROAD

We currently have a substantial client base of IBM 8100 users. If you have in excess of two years Programming or Systems Programming experience under DPPX or DPCX, please call Neil Williams.

IBM COBOL MVS CICS/DLI

Programmers
BERKS

A.S.A.P. start - min. four months. REF: J827

IBM COBOL IMS ADF

Programmers Analyst/Programmers
KENT & SURREY

Immediate start for long & short term development assignments. REF: J792/J728

PROCESS CONTROL

Programmers
HERTS

Development of realtime applications software; 6 months duration starting A.S.A.P. REF: L823

IBM SYSTEM 38 RPGIII

Programmer
MIDDLESEX

Programmer required with good experience of RPGIII for this 8 week contract starting immediately. REF: E820

SEL 32 MPX32

Analyst/Programmers
BELGIUM

2 Analyst/Programmers required with experience of above machine and C/S. ASSEMBLER essential and knowledge of FORTRAN and process control advantageous. Start date: 1st November 82 or earlier; 6 months extendable. REF: E821

PDP11/MACRO 11

Programmers
BERKS

2 Programmers required A.S.A.P. until the New Year with good MACRO 11. Will be working on a customised access control system. REF: E822

PDP 11 MUMPS

Programmer/Analyst
HOLLAND

Programmer/Analyst required with good MUMPS programming experience. Experience with ADABAS as well would be of especial interest but not essential. REF: E762

IBM SYSTEM 38 RPGIII

2 Programmers
BUCKS

Minimum of 6 months RPGIII required for this 4 month contract. REF: E828

OPERATIONS CONTRACT & PERMANENT

CONTRACT

URGENT All levels of experienced Burroughs 6800, 6900 staff - from Operations Manager downward - required for 3 month extended contract. Must live near, or be prepared to relocate to Merseyside for duration of contract. Call Ken Lynn for further details. REF: K144
Shift Leader required for one year contract in Saudi Arabia. Good experience at a senior level on IBM 3033, MVS/JES 2 required. Excellent benefits, salary up to £17,000 pa. REF: K139

PERMANENT

Operator 1 year experience on Data General or IBM 4331, AOS or DOS/VSE. London. Up to £6,000 pa. REF: K142
Operations Supervisor Good supervisory and Ops experience on IBM 4341, MVS JES 2, Bucks. Up to £8,500 pa. REF: K143
Operator Recent ICL 2960, Gull, DME experience needed. Berks. Up to £7,000 pa. REF: K131
Operator 18 months experience in OS/VS1 or IBM 4341 required. Berks. Up to £5,697 pa. REF: K141
Network Operator 1 years previous experience desired, plus CICS and DOS needed. London. Up to £7,600 pa. REF: K132

Knight

14 Old Park Lane, London W1Y 4NL
A member of the Computing Services Association

01-491 4706

HUNTERSKILL

The Hunterskill Group

Operations Controller/IBM Sys.34 Suffolk/Relocation Package

Our client, a manufacturing division of the Qualcast Group, based in the heart of the Suffolk countryside is seeking a first-class Operations Controller to take charge of their System 34 site.

The Operations Controller will be responsible for the effective and efficient operations of all computer systems both in the computer room and in the user departments.

The successful applicant will be aged between 29-40 with a sound technical background on System 34, a knowledge of Maapics would be advantageous. The appointment involves an element of hands-on operating and in addition you must possess good administrative skills and the ability to communicate at all levels. Ideally you will have 1-2 years experience in a similar position within a small D.P. environment.

The company can offer you a relocation package to this delightful part of the country.

For further details on the position, please contact Lynne Redgrave on 01-836 8411 (office hours) or 01-311 3099 (evenings and weekends). or complete the coupon below and post to FREEPOST, CoOperators, VLI House, St. Martins Lane, London WC2N 4BR.

Name _____

Address _____

Telephone _____

(Eve/Wknd) _____

CoOperators

for all computer
operations staff
permanent or temporary

OK, SO YOU THINK YOU KNOW ALL ABOUT GSD?

ANALYST/ PROGRAMMER £10-13,000 CITY

Here is the opportunity, not only to put to test your present GSD experience, but to gain substantially more technical knowledge on interactive GSD systems - specifically System 38.

You will be working for a small Software House, founded in 1972, which now has estimated contracts in excess of £1 million. The company aids its clients to deal with the information systems and data processing problems arising from organisational growth, financial pressures and the need to keep pace with developments in management control and accounting.

You will be involved in the design and management of systems projects within a variety of applications, and consequently you will enhance your existing GSD expertise.

If you have approximately 18 months RPG programming, followed by another 18 month designing systems on the IBM System 34 or 38 and feel that this experience, coupled with your general business exposure and communications skills is not really giving you the interest, advancement or remuneration that you deserve - telephone Nick Clements (who has come from a GSD background himself) on 01-734 7394 or on 01-546 7813 in the evening or at the weekends.

**WARWICK
WOODWARD**

A SPAN GROUP COMPANY

43-44, GREAT WINDMILL STREET, LONDON W1V 7PA
TELEPHONE: 01-734 7394 24 HOUR ANSWERPHONE

01-734 7394

Job Spot



ANALYST PROGRAMMERS

to £10,500

Easams, one of Europe's leading systems design company's, is looking for Analysts/Programmers to support teams on recently acquired projects. The positions will suit graduates with at least two years' experience in Real Time programming either using Macro II or Fortran in REX or RMS 11K, on DEC hardware, or using Basic or Pascal on HP desk top calculators. Involvement in mathematical modelling would be an advantage for defence applications whilst knowledge of telecommunications projects would be useful for commercial applications. Easams offer a stable career in a thriving department and as part of the GEC organisation an excellent salary and benefits package is available.

LOCATION: SURREY JA308/1

REAL TIME DEVELOPMENTS LTD

SOFTWARE ENGINEERS

to £12,000

Real Time Developments are a successful software house with a commitment to providing quality software services. Increased business has created a requirement for highly motivated and adaptable Software Engineers, educated to degree level and prepared to travel to clients premises when necessary. Likely candidates should have gained their experience in any mini/micro-computer environment using high level and Assembly languages. A knowledge of either Real Time Software, Data Communications or Industrial Automation applications will be advantageous. In addition to an excellent salary there are a range of benefits, including relocation, normally associated with a thriving and successful company.

LOCATION: HAMPSHIRE JA308/5



PROGRAMMERS ANALYST PROGRAMMERS

£ EXCELLENT

Ravenbourne Registration Services Ltd., a subsidiary of a leading merchant bank provides specialised computer based financial and administrative services to many British organisations. Hardware has been upgraded to an ICL 2946 and expansion coupled with the company's increased D.P. commitment has created a requirement for Programmers and Analysts/Programmers. It is likely that Programmers will have at least one year's Cobol experience, preferably on an ICL machine. Analysts/Programmers should have spent at least three years' in a development environment and be able to design and implement systems from feasibility. In addition to salary there are a range of benefits normally associated with a large financial institution.

LOCATION: BRICKENHAM JA308/3



TECHNICAL SUPPORT PROGRAMMER

£ 23,500

CPC, a major manufacturer of quality foods producing household names such as Knorr, Mazola and Hellmanns are seeking to expand with the addition of a Technical Support Programmer. Current hardware is an IBM 4331 and likely candidates will have a DOS/VSE operations background and be familiar with IBM, JCL, VSAM and Assembler. Experience should have been gained in a TP environment utilising either SHADOW or CICS. The successful candidate will also have an opportunity to train on an IBM System 38. In addition to salary there are a wide range of benefits including discount on goods, subsidised restaurant and active sports and social club.

LOCATION: SURREY JA308/4



TECHNICAL ANALYSTS

to £12,000

A leading worldwide shipping company has agreed a strategy placing them at the forefront of automated office technology. The technical support team have responsibility for analysing the requirements for hardware and software development, data communications, operations support and data administration. A commitment to planned expansion has created a requirement for Analysts with a minimum of two years experience in a Hewlett Packard or Tandem environment. Applicants will have planned, implemented and installed systems to recognised standards and procedures. Database and data dictionary analytical skills would be advantageous. Our clients offer excellent working conditions and benefits.

LOCATION: LONDON JA308/5



PROGRAMMER

to £11,000

Cardkey Systems, a part of Fairchild Industries and V.S.I. Corporation, are the current world leaders in the Access Control Industry. To meet expanding business they require an additional Programmer to work on existing packages, customising them to clients individual requirements. In addition to holding a full driving licence, candidates should have a minimum of one years programming experience in a real time environment using Macro II and Assembler on PDP11 Hardware. In addition to salary and usual large company benefits, including free BUPA, there will be an opportunity for occasional travel to Europe.

LOCATION: BRICKENHAM JA308/6

Action..

ring or send the coupon to
D.P. Recruitment Ltd,
Freeport, London W5 2ST
01-807 6501

Name
Address
Home tel. Work tel. Ext.
I am interested in Ref.

SysCom "The Genuine Alternative"

Sales Consultants Midlands

c £22,000 pa

Five Figure Salary + Commission + Car

We are now one of the UK's largest independently owned suppliers of computer-based business solutions. This has not been achieved by sudden growth or by acquiring other companies in the same field. It has been achieved by consolidating success upon success with the emphasis always on personal service. Our systems cover almost every business and industrial need, from mini-computers and peripherals to micro-systems, with a choice of software covering most aspects of financial, administration, marketing and production control.

These are two key positions in the plans to continue our gradual but sustained growth. You will have proven sales experience in the computer industry providing total business solutions for large and small companies. Above all you must be able to demonstrate success and a desire to take part in an expanding environment offering opportunities for personal fulfilment.

SysCom's declared aim has been to create an interactive, easy to instal and operate family of advanced but flexible computer products, bearing the SysCom name, and embodying all the safeguards, expandability, reliability and on-going support and services which that name has come to represent. That has been achieved - you could hardly be joining SysCom at a better time.

For further information contact Clive Wadell on 021-236 3781 (24 hour answering service) or on 021-449 6125 (evenings and weekends).

Technical, Sales & Management Appointments



Specialist Computer Recruitment Ltd

35-37 Great Charles Street, Queensway, Birmingham B3 3JY 021-236 3781
Birmingham • London • Manchester • Brussels • Amsterdam

IMMEDIATE CONTRACTS

IBM PL1 IMS DB/DC LONDON ANALYST/PROG.

IBM COBOL IMS DB/DC LONDON ANALYST/PROG.

IBM ASSEMBLER VM LONDON ANALYST/PROG.

IBM DB/DC LONDON ANALYST/PROG.

IBM DB/DC LONDON ANALYST/PROG.

IBM DB/DC LONDON ANALYST/PROG.

IBM DB/DC LONDON ANALYST/PROG.

VOLVO

A new range for the 80's

The launch of the 760 GLE heralds the beginning of an important new era for Volvo. Recognised as a major advance in automotive design and technology, it is a product of our commitment to development in all areas of our commercial endeavour. A commitment also reflected in the initiation of a major computing project to create a systems capability in line with a growth rate which has doubled our market share in the UK in only 4 years, generating a turnover now in excess of £200 million.

Currently, we operate 2 x ICL 2950's under DME which we have used successfully for the past 3 years. Our unprecedented expansion over this period has begun to out-date our existing systems and we intend to develop new systems based around 2 x 2958's under VME.

Far more than an exercise in exchange or replacement, this development provides us with the opportunity to further extend the utilisation of computer technology, throughout our commercial operation.

With the information services team now poised on the brink of a project whose scale will see its size almost double, we are looking to enhance our solid core of ICL experience with an injection of DP professionals - individuals whose skills and knowledge of VME or DME operations, systems design and analysis, and programming will provide the expertise for those developments, whilst ensuring that our current systems continue to effectively support the business.

If your experience falls within any of the following key areas, you can be sure that we want to hear from you.

Senior Systems Analysts

to £13,000

Systems Analysts

to £11,500

Development

To lead or participate within teams involved in either the analysis or design aspects of major new systems - Initially for our CARS and PARTS operations but later moving into MARKETING, FINANCE and other business areas.

Candidates should have sound analyst experience with a bias either towards business analysis or technical design in an ICL Database environment.

VOLVO

Business Support

To lead or participate within teams providing business and systems support to all areas of Volvo Concessionaires. Activities are wide ranging - from business systems planning and business investigation, to systems enhancement and the support of office automation systems.

Candidates should have sound systems or business analysis experience. A high level of business awareness is essential for the senior positions. Experience in a DME/TPS environment would be beneficial for certain analyst appointments.

Software Team Leader

to £12,000

With at least 4 years' ICL commercial software experience under your belt, you will play a central role in the implementation, acquisition and support of all ICL 3rd Party and in-house developed software. Accordingly a familiarity with VME 2900, TPMS and IDMS is essential and DME 2 or TPS experience desirable.

Software Programmers

to £10,000

Working as a member of either base or superstructure support teams you must possess a background in on-line commercial systems which has provided you with a knowledge of TPMS and ICL's data management products, or alternatively a familiarity with VME 2900 or VME/B-E, possibly supported by DME/2 experience.

Applications Programmers

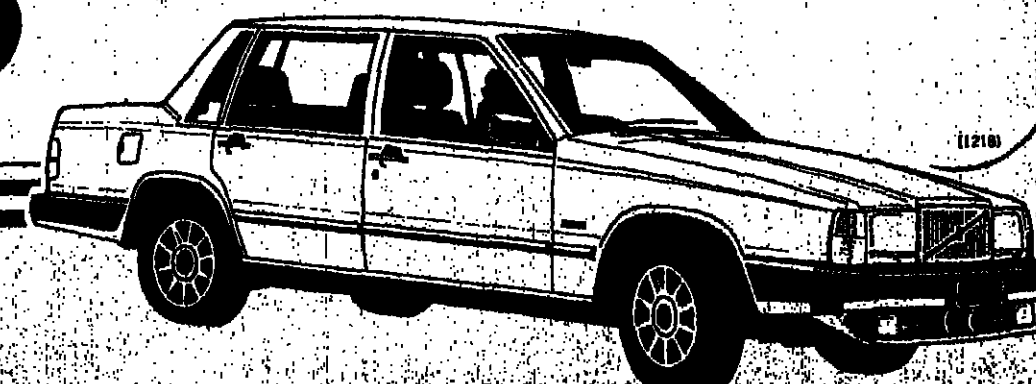
to £10,000

Programmers are required to play key roles within teams providing applications programming expertise to develop and support areas.

A minimum of 2 years COBOL programming experience is essential, acquired within either a VME/IDMS/TPMS or DME/TPS environment. Additionally, working knowledge of RPG11 would be of benefit in the support area.

Conditions of employment are excellent including 5 weeks' annual holiday, non-contributory pension and sickness schemes and personal accident cover, up to 5 times salary. Relocation expenses will be paid where appropriate.

To apply, telephone for an application form or alternatively write enclosing full personal and career details to: Mike Rogers, Divisional Personnel Manager, Volvo Concessionaires Ltd., Lancaster Road, Cressex Estate, High Wycombe, Bucks HP12 3QE Tel. High Wycombe (0494) 33444



FTB

Management Services Manager

West London
c £18,000 plus car

Ferguson Thorley Bowles Associates Limited

International Personnel Consultants
15 Clarence Street, Staines, Middlesex TW18 4SU
Telephone: Staines (0784) 59247. Telex: 8814148

A major international corporation specialising in Consumer products is embarking on considerable re-development and standardisation of computing facilities throughout the group. The UK operation is the head office for a market region covering Europe and Africa and incorporates five other strategically placed computer centres.

The position of Management Services Manager is available due to an internal transfer. The current configuration is an IBM 4331 operating under DOS/VSE and includes a European Communications network.

The main responsibilities are to direct and develop overall planning and co-ordination of information resources throughout the region, including systems, communications, standards and reporting.

The ideal applicant will have considerable management experience and be able to display an impressive logical career progression through programming, analysis and project leadership, preferably in an IBM environment.

Strong managerial skills must include budget control, accurate scheduling and forward planning and the ability to communicate at all levels.

This is a critical position within the organisation and demands a high calibre professional with commitment and energy which will be rewarded by an excellent salary and benefits package.

Contact in Strictest Confidence, Brian Postles

European Consumer Division Manager

Substantial Salary, + Bonus, + Prestigious Car

MICROSOFT

"This is an exceptional opportunity for the right individual to participate at a high level in one of the fastest growing markets and be provided with a personal challenge second to none."

Microsoft, leaders in microcomputer software, well known for such respected products as MBASIC, MS-DOS, XENIX and MULTIPLAN, have recently set up a fully owned European subsidiary based in Hertfordshire. During the coming years they expect to introduce many new products to dealers and distributors through the Consumer Division and to considerably expand their European Organisation.

The Consumer Division, which markets such products as the Apple 2 Softcard, Ramcard, 8-bit languages and Manager Series, requires a strong Business Manager, whose knowledge, enthusiasm and technical ability will enable him to set up a European manufacturing facility and to drive in an efficient and well organised manner the distribution and sales of consumer products throughout Europe. The Consumer Division Manager will report to the European Director of Marketing.

The role will be to manage consistent growth within the Consumer Division in a rational and co-ordinated manner. This will demand very strong managerial skills in the areas of sales, marketing, manufacturing and communication. It is likely that the applicant will be currently involved in a marketing or sales management position within the sphere of micro-computer hardware or software, having gained a sound technical awareness in previous positions.

The position of European Consumer Division Manager demands fluency, not only in English, but also French or German.

The position commands a substantial salary, a performance related bonus, prestigious company car, non-contributory health insurance and life insurance.

To apply for this position, either contact Martin Stainthorpe on 021-236 3781 (24 hour answering service) or submit a detailed C.V. to him at the Midlands & International Office.

SCR International....bringing the world within your reach

Technical, Sales & Management Appointments

SCR
Specialist Computer Recruitment
International Limited

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street,
Queensway, Birmingham B3 3JY
021-236 3781

HOLLAND
Willemsoordweg 92,
1071 H.M. Amsterdam
010 3120-760947

BELGIUM
Avenue Louise 321,
Boite 4, 1050 Bruxelles
010 322-840 7151/71

SOUTH
James House, 40 James Street,
London W1M 5HS
01-838 0871/488 0461

NORTH
Blackfriars House, The Personage,
Manchester M3 2JA
061-833 0427

MAJOR IBM USER

TO £11,500 + BENEFITS

TURNERS shoes

next Club 24

Hepworths

Hepworth Computer Services Limited (HCSL), based in Leeds, provides Information Processing services to the highly successful Hepworth group, including Hepworth Retail, Next, Turners and the pioneering Club 24 retail credit service, together with commercial services to the external market.

HCSL is now embarking upon an exciting period of development utilising the most advanced hardware and software techniques. As a result there are a number of key positions available within the Systems Development department.

Successful candidates will have good business systems awareness ideally in the retailing, merchandising or credit areas utilising IBM hardware and software including CICS, and be of graduate status.

Significant experience of IBM COBOL/CICS, structured techniques and team leadership skills are sought.

Over 3 years experience of IBM COBOL with good CICS expertise is required.

Over 2 years IBM COBOL working in a disciplined environment. Any CICS expertise is especially relevant but may not be essential.

HCSL has a recently upgraded installation, which together with a growing investment in micro-computers includes:

• 4MB 3031 and 8MB 4341 • Extensive 3680 EPOS
• 3800 Laser Printer • 1750 Telephone Exchange

Software in use includes VM, DOS/VSE, CMS, CICS with ACF/VTAM and NCP. Longer term plans include moving to an MVS environment.

Successful candidates can be assured of above average rewards for effort including a private health scheme, staff discounts, free life assurance and other major benefits.

Relocation assistance to an attractive part of the country is available where appropriate, and in all cases continued career progression is available for high calibre candidates in a dynamic environment.

For an initial discussion, or to apply for these excellent opportunities please contact STEVE SYKES on Leeds (0532) 455911 during office hours, or on Leeds (0532) 662417 evenings or weekends, alternatively send brief career details to the address below.

LORIEN
COMPUTER SERVICES



Lorien Computer Services
Recruitment Consultants
OCS House, Servia Road
Leeds LS7 1NJ
Tel Leeds (0532) 455911
24 hour telephone service

GET YOUR FOOT IN THE DOOR

AT

Scholl

TECHNICAL SUPPORT ANALYST

FOR A NEW IBM SYSTEM 38

SITE IN THE CITY.

£10-12,000

WARWICK WOODWARD A SPAN GROUP COMPANY

43-44 GREAT WINDMILL STREET LONDON W1V 7PA
TELEPHONE: 01-734 7394 24 HOUR ANSWERPHONE

Scholl, founded in 1904, is a main subsidiary of the Schering-Plough Group, one of the worlds foremost pharmaceuticals and consumer product companies. With over 150,000 retail outlets, the Information Systems department is of paramount importance, which is shown by their investment in the latest IBM technology.

Scholl now seek to recruit a Technical Support Analyst, to give technical advice and support to both operational and development staff on the recently installed IBM System 38. Reporting to the Computer Services Manager, you will be heavily involved with performance monitoring and tuning to maximise the utilisation of the new equipment; the development of database design and technical liaison with IBM and other suppliers. You will make a significant contribution to the planning and implementation of substantial future developments within the DP Department.

Probably educated to degree level, you will have approximately 5 years in the computer industry, with the last year spent on an IBM System 38. You will have an understanding of formal data-analysis techniques, the ability for liaison at all levels and the ambition to make the most of this exciting opportunity.

Nick Clements will tell you more if you call him on 01-734 7394, or on 01-546 7813 in the evening or at weekends.

01-546 7813

FBC

FBC Limited, Britain's leading agrochemicals enterprise, is owned by The Boots Company PLC and Fisons plc. It combines the assets and long experience of both companies in agrochemicals and certain of Fisons interests in industrial chemicals.

Challenging new posts in a challenging new company

BASED NOTTINGHAM

At FBC we are currently implementing the computerisation of major business systems for the UK Sales Region. Based on Digital VAX 11/780 equipment and linked to terminals in our nationwide network of distribution depots, this major new project will involve establishing a new Nottingham based team which will include the following:

Senior Analyst/Programmer

... to be responsible for maintaining the software environment and for ensuring that staff are provided with the necessary guidance for its effective utilisation. The work will involve liaison with external consultants, user departments and scheduling the development of the current phase and preparing further areas for systems development. Versatility and communication skills are essential and experience with VAX, CodaSys database concepts and structured analysis would be a considerable advantage. It is likely that the successful candidate will have at least 3 years' relevant experience. Ref: FY.119A

Analyst/Programmer

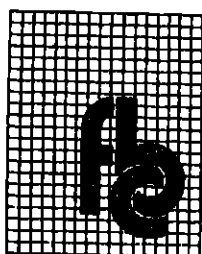
... to assist with system development and implementation working alongside external consultancy staff and with user departments. A minimum of two years' experience is essential and a knowledge of structured programming and database is preferred. Ref: FY.119B

Operations Supervisor

... to be responsible for installing and running the computer equipment and for the subsequent setting up of the terminal network and for its further development and day-to-day management. A sound background in computer operations management is essential together with the ability to establish supportive relationships with other departments. Ref: FY.119C

The salary and benefits package are those to be expected of a large, progressive company, and assistance with relocation costs is available where appropriate.

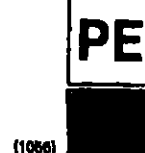
For an application form, please contact: Graham Warby, Personnel Officer, FBC Limited, Mark Street, Sandiacre, Nottingham NG10 5AD. Tel: Nottingham (0802) 398111, ext. 257, quoting the appropriate reference number.



Freelancers . . .

... in the North of England and Scotland who are available now or in the near future are invited to contact me, Peter Moore, to discuss a variety of interesting and rewarding assignments throughout the UK and overseas.

P-E Computer Services Limited
Winchester House, Fountain Street, Manchester M2 2EF. Telephone: 061-228 2776



CANNES - FRANCE ANALYST/PROGRAMMER

required for small dynamic international company in Cannes office. Experienced Software knowledge - Micros, CP-M, COBOL and ASSEMBLER - Salary negotiable.

Contact: Mr. L. Lelie, Norex S.A., 13 Rue la Tour, Neuilly sur Seine, 92400 Cannes, France. or alternatively Mr. Nash, Marlowe, Buckinghamshire. Telephone: 06284-74811

KAYNAR U.K. LTD.

BERKSHIRE
NEAR HEATHROW

ANALYST/PROGRAMMER

We have an immediate requirement for an experienced Analyst/Programmer to assist in the implementation of MAAPICS system onto a well-established IBM 34 system currently using MMAS.

Previous IBM 34 experience preferred together with a working knowledge of RPG II. Experience of MAAPICS would also be an advantage but not essential.

Kaynar (UK) Ltd. are specialist in the field of aircraft fasteners manufacture and our attractive terms will include four weeks' annual holiday, pension and life assurance scheme, subsidised dining facilities together with a competitive salary.

Application with full details of your career should be sent to: R. M. BALE, FINANCIAL DIRECTOR, KAYNAR (UK) LIMITED, BLACKTHORNE ROAD, COLNBROOK, SLOUGH, BERKSHIRE.

A MICRODOT COMPANY



SYSTEMS PROGRAMMER

to £9,000 p.a.

Experienced in DOS/VSE?
Seeking further challenges and rewards?

Our Installation (Maxis, Minis, Micros, IBM, DEC, RAIR, etc.) offers a rare opportunity for you to add other computers and operating software to your skills.

We offer a pleasant working environment with the country's leading manufacturer of soaps and detergents; friendly professional colleagues; and an attractive salary, plus productivity payments, five weeks' holiday per annum and contributory pension scheme.

Telephone or write to: The Recruitment Officer

LEVER BROTHERS LIMITED
Port Sunlight, Wirral, Merseyside L62 4XN
Telephone: 061-844 9444, Ext. 832

(126)

Ferranti Computer Systems Ltd.

Systems Programmers

The Software Department of Ferranti Computer Systems Limited, based at Cwmbran, has excellent opportunities for systems programmers. The department currently employs approximately 60 programmers working on relatively small but complex programs. Work is progressed either through a team of up to five members or by individuals working alone. The programs developed by the department can be used by other departments within the company, or externally by our customers.

Candidates, qualified to at least HND/HNC standard, should have one-to-two year engineering-based experience in a computer-oriented environment particularly related to design work. Recent qualifications with a degree in computer studies or one in which computing played a major role will also be considered. Familiarity with PASCAL or a similar language would be an advantage. A high degree of self-motivation, an ability to demonstrate considerable initiative and the capability of working alone in order to meet critical deadlines are also expected.

There may be occasional visits to customer sites throughout the U.K. possibly involving an overnight stay, therefore the ability to drive would be an advantage.

Ferranti offers a progressive salary structure, productivity bonus scheme and a range of company benefits including five weeks' holiday per annum.

If you are interested, please ring our Personnel Department on Cwmbran 71111 ext. 3007 or write quoting reference C/695/CW to:

Personnel Department
Ferranti Computer Systems Limited
Ty Coch Way, Cwmbran, Gwent NP44 7XX

Open to male and female applicants

FERRANTI
Selling technology

(1248)



APPLICATIONS AND USER SERVICES MANAGER

Responsible for a team of analysts and programmers providing a wide range of computer applications and user services to staff, students and administration. Current hardware includes 4 large Prime Computers and 46+ CP/M micros.

Salary Scale: PD18 - £2985 to £11617 (under review)
Closing date: 28th October, 1982.

Further particulars and application form from: Establishment Clerk
The Polytechnic, Wolverhampton WV1 1SB

(1266)

SERVICE ENGINEERS TO 10K

IN-HOUSE - FIELD - INTERNATIONAL SUPPORT

Our clients, world leaders in Spectral Analysis, Colour Scanning, Nuclear Medicine, and Image Processing, need engineers with Micro/Mini experience. Extensive training ensures valuable experience in Optics, Lasers, A to D, Colour Graphics, Scanners and Computer Systems.

Basic salary negotiable to £10K + car, 6-monthly bonus, 6-monthly salary reviews. Other exciting prospects include worldwide travel options.

STOP PRESS! Field Service Engineers - London/H. Counties/Midlands - to £20K + car. Elite Kit Quality Company! Don't delay, ring Mike today.

01-549 6441, 01-394 2359 (Eves.)

(1230)

AB EXECUTIVE (KINGSTON) LTD.

OEM TECHNICAL SUPPORT ENGINEER

Storage Technology - world leaders in the manufacture of main-frame computer peripherals, require an OEM Technical Support Engineer to work for our Peripherals Corporation.

Based at Southall, and working mainly in the UK with travel to France and other European countries.

EXPERIENCE
A minimum of 5 years engineering experience on magnetic tapes and discs in a technical support capacity, preferably with some experience of line printers and card readers. The ability to speak French would be desirable.

REWARDS
A competitive salary and wide range of Company benefits including: Company car, private medical insurance, life insurance and Company pension scheme. An excellent career opportunity in a progressive Company.

STC needs high quality staff to meet its commitments to future growth and expansion. Applicants should send a full C.V. to the Personnel Manager, Storage Technology Limited, Churston House, Portsmouth Road, Esher, Surrey.

STORAGE TECHNOLOGY

CONTRACTS

PRIMAX COMPUTER SERVICES

DG MV/8,000, FORTRAN, AOS/VS Scientific IBM IMS DB/DC, ADF 1.3, COBOL, CMS IBM IMS DB/DC, TSO, ADF, SP, TAB360 IBM COBOL, CICS COMMAND LEVEL, MVS, IMS MATCH, DL1 IBM COBOL, CICS, ICCS HP3000 RPG2 IBM COBOL, CICS, DL1 IBM MARK IV DL1 COBOL IBM RAMIS DB SPECIALIST

For these urgent requirements phone:

01-672 6640

or write to:

**176 Mitcham Road, TOOTING
London SW17 9NJ**

EMP/AGY.

**PRIMAX
COMPUTER
SERVICES**

(1228)

SUCCESSFUL

ANALYSTS/PROGRAMMERS required by expanding software house. Minimum 2 years commercial experience. Apply with c.v. to: Keith Heston, Tatra Business Systems Ltd., Tatra House, 14-18 Temple End, High Wycombe, Bucks. HP13 6BN. Tel: (0494) 462001.

SOUTH COAST

If you want to know what vacancies are currently available in all Southern Counties ring Jeff Minards (Managing Director) CBS APPOINTMENTS, 1 Woodton Gardens, Bournemouth (0202) 292155 (Office) or 0202 294481 (Eves & Weekends).

COMPUTER CAREERS IN AUSTRALIA Opportunities!

Over the past five years we have been retained by several major Australian companies and have assisted more than 100 families to move to Australia. Opportunities exist for PROGRAMMERS & ANALYSTS with at least three years experience. For details & brochures (free) write to: Charles Brodley Associates, Computer Careers in Australia, GPO Box 10, Agents General for Victoria, Australia, 100 Collins Street, Melbourne, VIC 3001. Please send this to: Charles Brodley Associates, 100 Collins Street, Melbourne, VIC 3001. Tel: (03) 499 1111. CHAS BROADLEY ASSOCIATES MELBOURNE AUSTRALIA

DATA PROCESSING MANAGEMENT CONSULTANTS

LONDON

£13,000-£18,000 + CAR

Touche Ross & Co. are a major international accountancy and consulting practice. Due to continuing growth, we need more consultants to join our London-based team.

Our assignments cover all facets of data processing and information technology, giving our consultants excellent opportunities to broaden their experience. We advise top management on strategy and assist them to implement our recommendations.

Applicants, aged 27-34, should have a good degree together with varied experience of programming, systems analysis and computer project management.

Although most of our work is in the U.K., consultants will also be able to participate in overseas projects, for which generous supplements are paid. Career prospects within this expanding practice are first class.

Please send a comprehensive career résumé, including salary history and day-time telephone number, quoting ref: 2077/CW, to G. J. Perkins.

Touche Ross & Co. Management Consultants

Hill House, 1 Little New Street, London EC4A 3TR. Tel: 01-353 8011.
A member of the Management Consultants Association and The Computer Services Association.

(1218)

EXCELLENT CONTRACTING OPPORTUNITIES

Our immediate domestic and international consulting needs are detailed below. If you are of a professional disposition, skilled and dedicated, and wish to join our growing permanent or contract staff, please contact us in respect of these and future opportunities.

INTERNATIONAL

PASCAL ASSEMBLER, CICS RPGII, IBM S/34

Programmer
Programmers
DB Manager
Database Specialist, Management Consultant, Project Manager

USA
USA
Hong Kong
Indonesia

UK

COBOL, IMS DB/DC, ADF a bonus

Programmers,
Programmer/Analysts,
Analysts
Programmer/Analyst
Analyst/Programmers

London;
Home Counties;
Worcestershire
Essex
Midlands

RPGII, IBM S/34
RPGII, IBM S/34
COBOL or ASSEMBLER,
Philips P7000

Analyst/Programmers

London

IMS/DB, finance
systems and on-line
systems exp.

Senior Analyst
Programmer,
Analyst/Programmer
Systems Programmer

London
London

APL
IBM Series 1, RPS

Senior Analyst
Programmer/Analysts
Analyst/Programmer

London
Home Counties

VN
COBOL or FORTRAN,
PRIME
RPGII or III, S/34 or S/38,
DMS34 or DMS34
MARKIV, DL1

Senior Analyst
Programmer/Analysts
Analyst/Programmer

London
Berkshire
Home Counties

For more information please contact:

Resources Department
TANGENT COMPUTER SERVICES LTD
102/106 South Street
Romford
Essex RM1 1RX
Tel: Romford (0708) 750201
(24-hour answering service)

(1239)

MCS

AUTHORISED
digital
COMPUTER DISTRIBUTOR

MCS is a successful, rapidly-expanding £4-million-a-year turnover company based in the North and South of England with clients throughout the country. To meet our expansion target we need:

Technical Sales Support Specialists

(London and Manchester)

£8,000 to £12,000

With experience in the implementation of On-line distribution and manufacturing systems to assist in the sale of MCS products. You will work closely with MCS salesmen in evaluating the prospect requirements, presentation of MCS solutions, system demonstrations, proposal preparation and subsequent implementation.

Programmers & Programmer Analysts

(London and Manchester)

£7,000 to £11,000

For the development and implementation of a variety of systems on PDPII and VAX equipment. You will have a golden opportunity to enhance your career and develop systems using up-to-date equipment and techniques. You should have not less than one year's experience gained in commercial environment using RSTS or VMS. You will work mainly on MCS premises using our computer for development, and travel to our clients' site for implementation support.

For London vacancies contact:
Neville Collen
4th Floor
Bilton House
34/36 Uxbridge Road
Hilling, London W5 2TJ
Telephone: 01-840 8899
(Reverse charge)

For Manchester vacancies contact:
Jane Smythe
3 Wynnstay Grove
Fallowfield
Manchester M14 6XG
Telephone: 061-948 7100
(Reverse charge)

(1298)

your appointments register

Programmers

NCR/IBM/COBOL to £14K
Insurance - Banking - London - H Counties - N Eng.

COBOL/PLI/OS/CICS/IMS to £13K
Commercial - H Counties - Midlands - Manchester

ICL/VMEB or K/IDMS to £11K
Commercial - Manu. - H Counties - Midlands - Man

IBM SYSTEM 34/38 RPG to £13K
London - H Counties

DEC/HP/WANG/DG to £12K
Basic - Cobol - Berks - Surrey

Analysts Programmers

IBM/ICL/HP/COBOL to £11K
Commercial - West London - Surrey

IBM/ICL to £12K
Stock control Manufacturing - Manchester

IBM/UNIVAC/ASSEMBLER to £12K
Online - Database - Surrey

Hardware/Support

CAD/CAM/GRAPHICS to £15K
Technical Support - H Counties

TECHNICAL AUTHOR to £Neg
UK, Overseas

Systems Analysts

NCR to £12K
Online, Indust. Fin. Prod. Control - Berks.

CAD/CAM to £16K
Real time - Modelling - Man - Essex

IBM/HONEYWELL to £14K
Commercial - H. Counties, Midlands

Software Engineers

FERRANTI/ARGUS to £12K
Berks - Surrey

WINCHESTER DISC DRIVES to £12K
Control - Systems - H Counties

MILITARY SYSTEMS/RADAR to £11K
Coral - Mascot - Surrey - Essex - S West

PDP/VAX/INTEL to £13K
Telecoms - ATE - Surrey - London

Senior Appointments

PRINCIPAL CONSULTANT to £15K
Commercial Accountancy, D.G. - Berks.

SALES EXECUTIVES to £25K
Micros - Minis - Peripherals - etc - Nationwide

CONSULTANTS to £18K
Commercial - Banking - Berks - London

You can be sure of hearing about many opportunities like these, U.K. and abroad, when you make Sloangate your first choice. Take the next step in your career with us!

telephone 01 549 9236

Sloangate
The Appointments Register

SLOANGATE LIMITED
214 KINGS ROAD
KINGSTON-UPON-THAMES
SURREY KT2 6HX

(1299)

Develop Your Career with a Market Leader

Our client, the undisputed market leader with an enviable growth record in a specialised field of Insurance, is currently seeking to recruit further highly-skilled DP personnel.

Based in CENTRAL LONDON, the powerful Data Centre configuration comprises IBM & Amdahl mainframes complemented by a series of PDP 11's at over 25 UK locations.

Due to continued expansion, the following career opportunities have been created:-

IBM Deputy Database Administrator

c.£14000

For this position, we are seeking an ADABAS Specialist who ideally will have had some exposure to some or all of the following: Data Dictionary, NATURAL, ADAMINT & CICS. Reporting to the Database Administrator, you will be responsible for the generation & tuning of ADABAS database software and advising development staff on the design & use of database facilities.

Ref: J1418

IBM Operations Support Analyst

c.£13000

An extensive operations background in an MVS environment, the implementation of ONLINE systems and good supervisory skills are prerequisites for this position. Responsible to the Applications Support Administrator, you will be primarily involved with the implementation & maintenance of systems, supporting 'users' of application software packages, preparation of procedures and investigation/appraisal of new techniques & software products.

Ref: J1419

DEC Operations Support Analyst

c.£13000

Applicants for this position should possess an in-depth knowledge of RSX11M gained in a systems support environment together with a thorough understanding of DEC hardware/software; exposure to micro-based systems would be an advantage. Working in a small team, your prime responsibilities will be to support and maintain both system & application software on distributed processing systems.

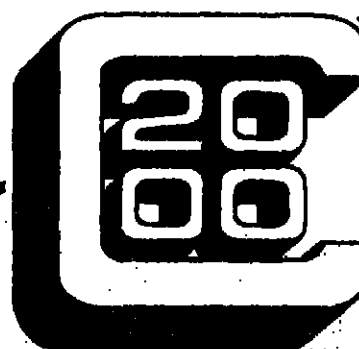
Ref: J1420

In addition to an excellent starting salary, successful candidates can expect an attractive benefits package including Mortgage subsidy, season ticket loan, subsidised restaurant & free BUPA.

For full details of these challenging positions within a progressive organisation offering security, job satisfaction & pleasant working conditions, please send your CV to the address below or telephone now quoting the appropriate reference number.

Data Processing Consultants
217-218 Tottenham Court Road
London W1P 9AF

Tel: 01-636 7584
(24 hrs)



Computer Two Thousand Ltd

Systems Analyst c.£13,000 Senior Programmers c.£11,000 Programmers c.£9,000

- City
- New IBM Installation
- Mortgage subsidy
- Non contributory pension
- Travel assistance

Our client is the U.K. Member of a successful international insurance group. Following a recent strategy survey, they are making a significant investment in hardware and people to develop state-of-the-art systems to see them through the next decade. Hardware is IBM, 4300 DOS/VSE CICS/DLI together with S/23 and Displaywriter. They now need the following additional people:

Systems Analyst: to lead the technical development of new systems. Candidates should have a minimum of five years' DP experience including at least three years' analysis experience. They should have led and implemented at least one major interactive project and have experience of the insurance and commercial business world. A knowledge of database would be an asset. Exceptionally good communication skills are needed in order to work effectively with and win the confidence of senior user management as well as creativity and flair to exploit technology to the advantage of the business. Preferred age range is over 25.

Senior Programmers: to lead small programming teams working on the design and development of various insurance systems. Candidates should have a minimum of 4 years' programming experience including 2 years' leading successful projects. Experience of structured program design is required in a CICS/DLI/COBOL environment. A knowledge of VSAM and DOS/VSE would be an advantage. In personal terms, candidates should be capable of independent working and strong enough to ensure that technical considerations are not overruled in the finished systems.

COBOL Programmers: with not less than three years' experience, including working in a DOS/VSE CICS/DLI environment.

These positions, carrying an exceptionally good BENEFITS PACKAGE, provide an opportunity of getting in 'on the ground floor'.

Write in confidence with personal details quoting reference 08/20 to the Managing Director,

AGB Recruitment
173 Sloane Street London SW1X 9QG

A member of the AGB Group of companies

PROGRAMMERS IBM CITY £13K + BANKING BENEFITS
A solid IBM background is required by this American Bank in the City. Three Programmers are required: one Applications Programmer with COBOL & ASSEMBLER, a knowledge of VSAM & DOS/VSE helpful. Salary circa £9,500. Two Software Programmers with a good knowledge of COBOL & ASSEMBLER as well as some CICS & VM. Salary circa £13,000. In both positions career prospects are excellent and banking benefits are offered which include a subsidised mortgage. Ref: S5515

IBM ANALYST/PROGRAMMER CENTRAL LONDON £11,500
TRAIN IN DATABASE
A company involved in the energy and resources industry seek an additional Analyst/Programmer to work on the development and enhancement of new and existing systems. The applications involved include stock control, distribution and accounting. The successful applicant will be working as an Analyst/Programmer in an IBM COBOL environment, preferably with some Database experience, both IMS & DLI are used, with DB/DC & CICS. It is stressed that candidates without Database experience should also apply, as full training will be given. Ref: S5418

SOFTWARE ENGINEERS MIDDY & CITY £15,000+
Software Engineers and Systems Programmers are currently required by a large multi-site international corporation. Particular skills sought after are a sound experience of MVS, plus a knowledge of VTAM and VSAM. Vacancies also exist with highly attractive salaries for IBM Systems Programmers from an OS or DOS background. Excellent career prospects and involvement in R & D are available to successful candidates. Ref: N5514

ANALYST/PROGRAMMERS LONDON £12,000
The opportunity of joining a fast moving American Oil Company is available to IBM CICS COBOL Analyst/Programmers. The emphasis lies on programming, so applicants looking to move into systems analysis may be interested. Other advantageous experience would be VSAM, a DOS/VSE background and a knowledge of 4300 hardware. Working in a small team successful candidates will enjoy responsibility in an exciting development environment. Ref: N5505

PROGS - ANAL/PROGS SURREY to £9,000
COBOL Programmers with at least two years' ICL VME/B experience are currently required by a financial organisation based in Surrey. Applicants should be looking towards moving up to Analyst/Programmer and should have had commercial experience in a development environment. Ref: N5525

ANALYST/PROGRAMMERS CITY & ABROAD to £13K + MORTGAGE
An excellent opportunity exists for RPG II Analyst/Programmers with an internationally orientated financial organisation. Based in the City, successful applicants will have the opportunity of overseas travel and should have a knowledge of MIDAS. Background in a financial environment would be advantageous. A highly competitive salary, plus an attractive benefits package including mortgage subsidy exists with this vacancy. Ref: N5507

ANALYST/PROGRAMMER WEST LONDON £10,000
RPG II & RPG III
Based in West London, this company involved in the manufacture of medical products have a requirement for an Analyst/Programmer. Two years' plus RPG II programming experience with some analysis gained on a System 34 is desirable, however a System 3 background will be considered. A System 38 is to be installed in the near future, so any RPG III experience would be a plus. In return the Company offer a generous salary and good working conditions. Ref: S5529

ANY COBOL PROGRAMMERS WEST LONDON £NEG
One years' plus experience as a COBOL Programmer is required by this multi-national company. VAX 11/780's are used and any necessary retraining will be given. Ref: S5533

MACRO II PROGRAMMER CITY £9K + BANKING BENEFITS
A progressive Bank in the City wish to recruit an additional programmer to work on the development and enhancement of its banking systems on VAX kit. Applicants should have upwards of 6 months' MACRO II programming exp. Any previous exposure to analysis or banking will be utilised. Ref: S5524

PROGS (RE-TRAIN TO IBM) ESSEX to £9,000
An Essex based hardware manufacturing company offer a genuine opportunity for COBOL Programmers with 2 years' experience (from any mainframe background), to move on to IBM Systems. Any exposure to IBM or ICL hardware would be advantageous and would be reflected in salary. Successful candidates will be involved totally in development work on IBM4341 machines. Ref: N5246

ICL OPS SUPERVISOR SURREY ENEGOTIABLE
New ICL site requires an ICL Operations Supervisor, preferably with previous supervisory experience. Candidates must have a good knowledge of VMEB/VME 2900. Ref: J5327

01-437 5994 24hr
DATAPOWER

Employment/Business Agency
Suite 504.5th Floor, Triumph Hse, 189 Regent St, London W1

01-450 2602 or 286 9417 (Evening)

BANKING WEST LONDON IBM 4300 DATABASE ADMINISTRATOR c. £18,000 + BENEFITS TWO SYSTEMS DESIGNERS c. £10,000 + BENEFITS SYSTEMS PROGRAMMER c. £10,000 + BENEFITS

EXCELLENT BANKING BENEFITS INCLUDE
CHEAP MORTGAGE, PERSONAL LOANS AND
NON-CONTRIBUTORY PENSION SCHEME.

An IBM 4300 will shortly be installed at this subsidiary of one of the world's largest banks. Ground-floor career opportunities therefore exist in the development of a database and new application systems in a transaction processing environment with sophisticated networking.

The Database Administrator should have some two to three years' experience of database design and should know either ISM or IDMS.

One Systems Designer should have some database design experience, whilst the other needs to have a financial systems background and good user contact skills.

The major requirement for the Systems Programmer is MVS experience, although experience of DOS/VSE, CICS or SNA would be useful.

Get into banking and call MARK IRENS now!
Ref: CW1410/1

HUTTON EXECUTIVE RECRUITMENT LTD
HUTTON HOUSE
HUTTON STREET, LONDON EC4Y 5HW

TELEPHONE: 01-353 7747 24 HOURS

Hutton

CONSULTANCY LONDON

c. £15,000 + CAR

A leading international consultancy has openings for top-calibre D.P. professionals who have either good all-round commercial applications experience or good banking experience.

You will need to meet all the following requirements:

- (1) Good degree
- (2) Perfect communication skills and professional manner
- (3) 25-32 years old
- (4) Proven track record in a variety of application areas or in international banking

You will mainly be involved in pure consultancy, but also in project management. This is seen as a logical career step for high fliers who have proven themselves in a user environment and are ready to move forward.

For further information, please contact MARK IRENS, quoting reference CW1410/2.

HUTTON EXECUTIVE RECRUITMENT LTD
HUTTON HOUSE
HUTTON STREET, LONDON EC4Y 5HW

TELEPHONE: 01-353 7747 24 HOURS

Hutton

SALES ACCOUNT MANAGERS/ DIRECTORS

£20,000-£24,000

**GUARANTEED
CAR AND BENEFITS**

**VACANCIES IN WEST COUNTRY
SOUTHERN AND NORTHERN HOME
COUNTIES, CENTRAL LONDON**

Excellent career prospects exist within our client's U.K. subsidiary. They market a wide range of distributed data processing systems to commercial/financial markets.

Recruitment of an additional ten professional Account Managers/Directors is now underway and we welcome applications from those identifying with the following background.

They require applicants aged approximately 30-45, to have a minimum of five years' new business sales experience with a manufacturer of mini/mainframe equipment, possibly with a communications content. The market area should have been commercial and/or financial.

A successful sales track record is essential and we are looking for executives who can justify the salary commitment our clients are prepared to make.

Telephone BOB BOWER in the strictest confidence for further information. Ref: CW1410/3

HUTTON EXECUTIVE RECRUITMENT LTD
HUTTON HOUSE
HUTTON STREET, LONDON EC4Y 5HW

TELEPHONE: 01-353 7747 24 HOURS

Hutton

Ref: CW1410/3

DALROTH computer personnel

Management Systems and Programming, the world leaders in Data Management/Dictionary driven software is undertaking a major worldwide marketing push, and with two new products being launched in 1982 and a further two in 1983 the Company are creating two new management positions. MSP have their Eastern Hemisphere R & D development unit London based and have twin mainframes operating DOS and OS, also a number of micros to assist in development.

Marketing Communications

Programming

London based. 01-493 2947

MSP require a Manager to head-up the London-based Corporate Marketing Communications Department. A significant amount of liaison will be required with a counterpart based in the USA. A highly skilled, aggressive marketing professional, with a solid IBM background to provide marketing materials, guidelines and assistance for the international network of distributors serving 25 countries. Responsibilities also include PR activities, liaison with an international advertising agency and major European user group conference co-ordinations. Essential experience is: good IBM software background, proven experience in the creation of marketing materials; in PR and also exposure to technical publication production.

For further information please telephone Jenny Dalrymple-Hay, daytime 01-493 2947; evening (04946) 4579 or write quoting Ref: 9932.

DALROTH & PARTNERS LIMITED, 4 HALF MOON STREET, LONDON W1

MSP have offices in —
London
Leicester
Hamburg
Munich
Sydney
Boston
Atlanta
New York
Chicago
Seattle
Washington DC

msp

SERVICE OPERATIONS MANAGER

Benson, Europe's largest manufacturer of computer-controlled drafting equipment are seeking an experienced manager to take operational control of the field service team.

This newly-created position, based at the Bristol head office, results from our sustained growth, and should appeal to a mature, technically able person, capable of motivating their team and maintaining the excellence of Benson's service record.

Attractive salary and benefits package.

Applications in writing, enclosing c.v., should be sent to

Clive M. Hughes, U.K. Service Manager,
Benson Electronics Ltd.,
Techno House, Redcliffe Way, Bristol BS1 6NH.



benson The Computer Drafting Professionals

TOP JOBS

Let us write and produce superbly your standard interview-seeking CV. Free info Personal Curriculum Vitae Ltd, 272/278 Pentonville Rd, London N1. 01-278 4141.

PROGRAMMER

1/2 year experience with FORTRAN 77 or Mini Computer Systems, to work with small team in the development of Mapping and Geological Systems.
CV to:
Mr E. J. Stutterbuck
Scott Pickford Associates
256 High Street
Croydon
Surrey

LINCOLNSHIRE
GRANTHAM COLLEGE OF
FURTHER EDUCATION

Department of
Business Studies

LECTURER II IN COMPUTER AND DATA PROCESSING

The post will be available from
January 1, 1983.

Salary scale: £6865-£11022
with possibility of increments
for relevant experience.

Application forms and further
details available from the Principal,
Grantham College of
Further Education, Grantham,
Lincolnshire, to whom they
should be returned as soon as
possible.

DEPARTMENT OF ENGINEERING
Engineering Services Division

Engineering Analyst/ Programmer

Post Ref. E2114

Grade AP4/6
Salary £8501-£7876

A vacancy exists in the Computer Section of the Department of Engineering based at County Hall, Barnsley, for an Analyst/Programmer on Engineering Applications. The work involves developing new programs and adapting existing ones for the engineering activities of the Department which includes highway design and maintenance, structural engineering, traffic transportation and engineering management. The Section operates a variety of keyboard and batch terminals to the County's DUAL ICL 2886s and other computers and also runs a stand-alone graphics system. Analyst programmers are in regular contact with potential and existing users of their programs.

Applicants should be suitably experienced and qualified by an appropriate degree or H.N.D.

Please write or telephone for an application form, quoting the above post reference, to the Chief Executive (Personnel), South Yorkshire County Council, County Hall, Barnsley S70 2TN. Telephone Barnsley (0228) 86141, Ext. 266.

Closing date for applications will be October 29, 1982.

**South Yorkshire
County Council**
SETTING THE PACE



UNIVERSITY OF ESSEX
DEPARTMENT OF
MATHEMATICS
SENIOR RESEARCH
OFFICER

Applications are invited for a post of Senior Research Officer to work on a one-year SERC project. The successful applicant will participate in design and use of software for handling real-world clinical material, with the aim of constructing a prototype Expert System. Fluent Pascal and some experience with fuzzy relations would be advantageous. The salary will be within the first three points of the Range 1A scale (£8375-£7225).
Applications quoting reference AG/145/CW including a curriculum vitae and the names and addresses of two referees, should reach the "Fuzzy Research Project", Department of Mathematics, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further details may be obtained, by 5th November, 1982.

(1232)

UNIVERSITY
OF SOUTHAMPTON
SENIOR
PROGRAMMER

Applications are invited for a post within the University's Computing Service. The successful applicant will join a team working on a variety of support activities either directly with computer users or in the development of computing service facilities. He or she should have a sound knowledge of computing, microcomputers or computer communications in a technical or educational environment. Applicants should normally possess a degree or equivalent.
The appointment will be on the academically related scale in the range £5850-£11105 and will be for one year in the first instance. The starting salary will depend upon age and experience.
Applications (two copies) giving date of birth, full curriculum vitae and the names and addresses of two referees should be sent to Mr C. St. Paul, Staffing Department, The University, Southampton SO9 5NH from whom further particulars can be obtained. The closing date for applications is 30 October 1982. Please quote reference 2600/CB/CW.

(1232)

Ferranti Offshore Systems Ltd.

SENIOR SYSTEMS PROGRAMMER

Due to the continued increase in our oil related activities Ferranti Offshore Systems, a young progressive and enthusiastic company working within the Ferranti Group require a Senior Systems Programmer.

The position requires a person to head the company's existing software team; to assist in proposals for software contracts; generate software specifications from functional (and other) design specification and to supervise and generate software documentation packages as required by contracts in force.

Applicants, ideally should have a minimum of a degree in a computer subject, 3-4 years experience in system level programming in a real time environment and a good working knowledge of generating software specifications and their implications. In addition, the successful applicant will be conversant with, and be able to modify and enhance Assembler Language Code and high level codes (i.e. Coral 66) for Ferranti Argus 700 computers and will be able to cope with other codes and languages as may be required. A knowledge of Pascal/PLZ language code and/or Zilog Z80 and Z8000 systems would be an advantage although not essential.

The excellent salary and conditions will be negotiable, relative to experience, and will reflect the level of responsibility of this senior position. Further career potential is excellent. The successful applicant can expect assistance with relocation expenses where applicable.

Applications should be made in writing to the
Personnel Department,
Ferranti Offshore Systems Limited,
Scott House,
475-485 Union Street,
Aberdeen AB1 2DB.
Tel. (0224) 50283.

FERRANTI
Setting technology

Marketing Executive

Salary +
Guarantee
to **£27k**
+ Commission
+ Executive Car
(Probable O.Q.E. c.£35K)

NORTH WEST BASE

This is an outstanding opportunity for a young, ambitious sales professional to take full control of a well resourced marketing operation and develop it into a substantial business. The successful applicant will require:

- ★ a full awareness of current O.E.M. market developments
- ★ a relevant and successful track record
- ★ maturity and energy

In order to succeed in this demanding role and take advantage of the further opportunities for rapid personal development and high financial rewards.

Contact: **Paul Henry** on **061-833 0427** (Office)
or 051-924 2868 (Evenings and Weekends).

In the beginning
our Client was an established
American organisation known
mainly for innovative,
microprocessor based scientific
instrumentation — a heritage
comparable to some of today's
computer industry giants.

then
they designed and launched a
uniquely powerful microcomputer
onto the U.S. commercial market.
The venture is proving to be a
success.

now
they must recruit the two key
individuals who will mastermind
their entry into the U.K. market.
These appointments will challenge
the most capable of professionals —
and carry substantial financial and
career incentives.

Systems Consultant (Pre-Sales Support)

Salary
to **£15k**
+ Bonus
+ Executive
Car

This key position requires a Software Technician to work closely with the Marketing Executive, assuming full responsibility for all pre-sales support activities. The successful applicant's background will include:

- ★ Systems programming experience
 - ★ A knowledge of communications software
 - ★ 6+ years within the computing industry
- Emphasis will be placed on the personal skills required to succeed in a fast moving sales environment.

Contact: **Sheila Bradbury** on **061-833 0427** (Office) or
061-485 7798 (Evenings and Weekends before 9pm).

The successful applicants to both positions must be prepared to spend short periods in America for product training and will enjoy normal large company benefits including relocation expenses, where appropriate, BUPA and a generous mileage allowance.

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH
James House, 40 Janine Street,
London W1M 5HS
01-235 0671/488 8481

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street,
Quornway, Birmingham B3 3JY
021-236 3761

NORTH
International House, 84 Deansgate,
Manchester M3 2ER
061-433 0427

BRISTOL
Avenue Louise 327,
Belle Vue, Bristol
0117-322-940/1161/771

HOLLAND
Willemsoordweg 92,
1071 H.M. Amsterdam
010 3120-769947

Ref: 1232

The Open Evening. Tuesday, 19th October.

If you are wondering about the next step in your career, come and meet the men and women of a software team who have been given unrivalled advantages.

New Company

Marconi Underwater Systems Ltd was formed in April as part of the prestigious and successful GEC-Marconi Group. You will join a dynamic young company which has all the backup and security of an established organisation.

New Project

This year they won the contract to design and develop Britain's new heavyweight torpedo - SPEARFISH. You will be at the forefront of technology and will have the advantage of joining projects at the beginning and using advanced hardware including VAX11/780's, Intel 8086's, ARRAY PROCESSORS and colour graphics.

New Careers

Members of the team not only have an exciting technical role, they also have the opportunity to move into software management. The company promotes on ability rather than age. You will be surprised that the people you meet have attained their senior positions so early in their careers.

More Rewards

A progressive attitude towards salaries and career development leads to a salary ranging up to £16,000, and is currently complemented by twice yearly reviews, 5 weeks' holidays, subsidised meals and the full GEC-Marconi benefits package. Relocation expenses to this N.W. London location are available where appropriate.

Scientific Software Engineers

If you have any experience of VAX, PDP, MICRO PROCESSORS, ARRAY PROCESSORS, COLOUR GRAPHICS, RELATIONAL DATABASES, COBOL, FORTRAN, REAL TIME SOFTWARE, MILITARY APPLICATIONS, or any other scientific software, please contact us for a free brochure.

Computer
People
London



COVERING THE WORLD

One of the world's largest insurance services companies and part of a top American group, our client is at the forefront of the international broking market providing comprehensive cover to Marine, Aviation and Industry. They are now on the threshold of a major phase in systems development designed to meet the information needs of a thriving, worldwide organisation. To co-ordinate systems requirements there is a U.K. based Management Services company within the group, providing data processing and communications facilities. Utilising the latest IBM 4300/8100 technology they are currently undertaking a number of projects with the emphasis on Accounting and Risk Administration systems.

To drive this expansion a few key staff are required with the ability to make a dynamic contribution to the development programme.

Systems Analyst - To £12k

We are looking for a Systems Analyst, with a programming background and three to five years experience in data processing. You should have had involvement in broking systems and worked on business analysis and systems design in an IBM environment. You will be a member of a small team developing new applications, such as accounting, risk administration and word processing systems. Based in London this position offers an interesting future to the right candidate.

Programmers - To £11k

COBOL/CICS - Two years IBM DOS/VSE experience opens up some interesting opportunities to work on insurance and accounting systems. You should have a sound background in either Cobol or PL/I and one years involvement with CICS to take a development role on these integrated database systems. Based on the Surrey/Hants Border.

DPCX - A new system using 8100 DPCX/DOSF technology, combined with CICS and VSAM is currently being developed. To be involved you should have a practical knowledge of 8100 DPCX macro assembler gained over one year. Based on the Surrey/Hants Border.

Systems Programmer - £12k

This position requires a minimum of one years experience of Systems Programming in a DOS/VSE environment. The hardware consists of an IBM 4331 which will be upgraded to 4341 under VM, DOS/VSE early next year. IBM 8100's are linked to the mainframe using CICS/VS, ACF/VTAM, ACF/NCP and DPCX.

You will join a team of two, and play a leading role in installing and supporting VM and DOS/VSE. Additionally, you will take part in the continuing development of the SNA network. Based on the Surrey/Hants Border, you will be at the heart of technical advancement.

For a detailed profile of the company and further information on these opportunities, please contact Francesca Drinkwater or return the coupon below.



D.P. RECRUITMENT LTD
FREEPOST, LONDON W5 2BR
TELEPHONE: 01-567 5501
(24 HOUR ANSWERPHONE)

Name: _____
Address: _____
Work Tel: _____
Home Tel: _____
Fax: _____

Do you want to help create an advanced database with the latest IBM hardware?

Consider:

- ☐ Varied, interesting development work embracing many different disciplines and applications.
- ☐ Integration of a number of systems within a common, large-scale database under IMS DB/DC.
- ☐ On-line COBOL program development in a carefully-managed operational environment.
- ☐ Real career advancement in an expanding D.P. Centre, with prospects for international travel.
- ☐ Excellent remuneration featuring high salaries, non-contributory pension, paid overtime, bonus, profit-sharing.
- ☐ Generous relocation package including cheap mortgage, applying to both men and women, of course.
- ☐ Superb location on a picturesque part of the South Coast near the New Forest and Hardy country.

Consider your current position against the checklist above, and you'll be lucky to score 4 out of 7. You could do better.



Barclays Bank International are recruiting high-calibre analysts programmers and operations analysts for their D. P. Centre - the hub of their 2000 offices worldwide - located at Poole, Dorset.

Systems Analysts, to £12k plus benefits with 3/4 years experience an appreciable amount of which has been gained in international banking/foreign exchange applications preferably in an IBM installation. A programming background would be useful.

Systems Programmers, to £13.5k plus benefits with at least two years experience within an MVS environment using IMS and VTAM. Alternatively, with at least two years experience on Tandem hardware using Assembler-type language in a support role.

Operations Support at BBI is an impressive department attracting talented technicians who enjoy the stimulus of 'state of the art' technology. It is envisaged that successful applicants would have gained experience at IBM 370/168 - 3081 installations within a Real-Time environment.

IMS Specialist, cf£11k + benefits. As a key member of the IMS Support Team you will possess a minimum of 4 years DP experience including 2 years covering the implementation support for IMS applications with experience in MVS, JCL, IMS batch and BMP JCL, BMP recovery and restart procedures, preferably with an understanding of DBRC and IMS batch utilities.

Acceptance Test Analysts, cf£9k + benefits. Acceptance Test Analysts are required to join the team which ensures that work submitted is controlled and tested so as to protect the live system environment. At least 2 years experience from a similar operations support background is required.

Decide:

Join Barclays Bank International. For more details of these superb career opportunities, proceed as follows. Analysts & Programmers: phone Geoffrey A. Richardson on 01-560 4013 (9.30 to 1800) or 01-882 8425 (19.30 onwards and weekends). Operations Analysts: phone Kay Stebbings on 01-838 8411 (24 hours). Alternatively, mail the coupon below. Initial interviews can be arranged in London, Birmingham, Manchester or Poole.



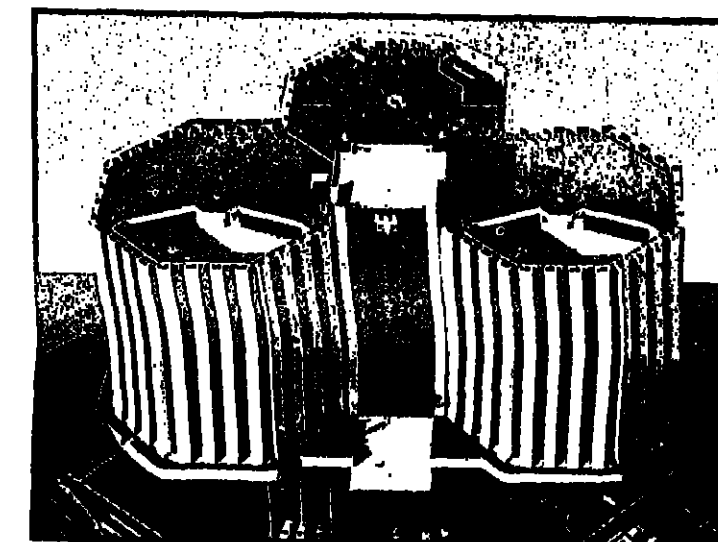
Mail (no stamp) to: FREEPOST, Computer People South, 27 George St., Croydon CR0 9ED.

Name: _____
Address: _____
Tel. No. (Home) _____ (Wk) _____

Computer
People
South

Geoff: This campaign you ran for BBI in June - How was the response?

AGL
Very good indeed. 20 offers made and accepted. Phase II starts now and there are 10 more vacancies. I think we should re-run it.
GAR.



01-882 8425

MIDDLE EAST JOB OPPORTUNITIES

Get a bi-lingual contract signed, is Sarah Hardcastle's advice for those who plan to take a job in the Middle East

Arab firms offer up to three times UK pay to lure professionals

ALL those stories about working in the Middle East are true.

The one about the programmer housed in a desert caravan unable to get into town is as valid as the one about the DPM getting £30K a year, free accommodation in a luxury villa, a car, frequent first class travel home and his children's school fees paid.

The moral of working in the Middle East is that you have to be careful. Everything from a valid bi-lingual contract to an appreciation of how you'll adjust to the Arab culture must be sorted out before you board the plane to Riyadh or Dubai.

Leave it till you get there and you could be sorry.

For computer people, there are tremendous opportunities in the Middle East. The oil companies, which have been using computers for years, are continually developing new applications and are now starting to move into office automation. Smaller businesses, such as the many trading companies, are beginning to computerise for the first time, many of them making the quantum leap from manual procedure to sophisticated online systems. In addition, huge programmes in telecommunications, education, medicine, and construction are under way in the Gulf States and Saudi Arabia, all of them employing computers and systems of some kind.

With few skilled computer personnel of their own to call upon, the Arab countries are only too keen to employ experienced people from Europe and the UK in particular to run their installations.

To attract computer professionals, Middle East companies offer salaries at least double, sometime triple those in the UK. Flights home and free accommodation are included in the average contract.

Personal tax is minimal and those staying out of the UK for a year don't have to pay any here either.

At the end of a typical two-year contract you could return home with sufficient saved to fulfil at least one ambition. Apart from your bank balance, your career will have benefited by working with some of the latest systems now being installed in the Middle East.

Balancing the obvious financial advantages are the cultural, political and religious differences from the European way of life.

Not the least of these is the political volatility of the region. Though stable compared with their near neighbours, Saudi Arabia and the Gulf States are too close to one of the world's main trouble spots for many Europeans to feel comfortable. The revolution in Iran, the revival of Islamic fundamentalism and the two current wars have sent ripples of unease

throughout the region; Saudi Arabia's response has been metaphorically to close its frontiers, making life more restrictive for foreign nationals.

On a personal level, the restrictions of the Arab culture are the expatriate's hardest cross to bear. In Saudi Arabia, ironically the largest market for computer jobs, they are more strongly enforced than in the Gulf States.

In Saudi you cannot drink, though you can in Dubai, and life for women is crippling limited. Assuming your wife could accompany you to Saudi, she would not be able to drive or go shopping unaccompanied or to work.

The position in the Gulf is infinitely freer, and European women often work, though few hold senior posts.

Mike Mead has been placing computer professionals in the Middle East for several years and recently formed his own recruitment consultancy, Imers, based in Chelmsford, Essex.

Mead believes the successful expatriate is the one who can adjust to the Arab way of life. "The biggest mistake Europeans make is in not accepting the Arab environment and the benefits that come from living in a different country," he says.

Those who do adjust tend to stay according to Mead. "Most people are attracted by the money but I have found that many I've



"The biggest mistake Europeans make is not accepting the Arab environment."

sent out on a one-year contract have renewed and are now in their third year. The reasons are largely financial.

Though Saudi Arabia is the least popular of all the Arab countries because of its restrictions, it offers five jobs to every one in the Gulf States of Oman, Qatar, Bahrain, Dubai and Kuwait which have a much freer lifestyle.

On the other hand the professional with formal qualifications and five to seven years' experience can move or less pick and choose which country he wishes to go to. Apart from the man at the top of the tree, there is a great call for experienced people in systems and programming, senior operations staff and computer engineers. Operators and data entry staff tend to be recruited from the country's own nationals.

Experience on IBM and IBM-compatible equipment is called for mainly by Saudi Arabia. In the Gulf States, Hewlett-Packard, DEC, NCR, ICL, Wang and Data

General are very much in evidence and so experience with these companies' systems is an advantage.

Salaries and contracts go hand-in-hand. Short-term contracts pay between £20,000 and £40,000 a year, but typically last a few months or the duration of a project. Long-term or permanent contracts, issued on a yearly basis, range from £14,000 to £30,000.

A contract with a good company should include air-conditioned and furnished accommodation in a house, flat or hotel and at least one return flight home a year. Holidays for permanent contracts are typically four to six weeks a year.

The majority of contracts, both short-term and permanent, are for "single status" which means that provision for wife and family are not included.

However, single-status, permanent contracts will often allow families in after the post has been held for one year. The alternative is to offer frequent, paid flights

home. "Contracts should be studied carefully, particularly all the things you will and will not receive," warns Mead.

Among the points to watch are the length of your working week. "Some contracts are based on daily payment over a seven-day week so you must ensure that you are not required to work more than the customary six days a week."

If you intend working for an Arab company and are negotiating with it directly, your contract will only be valid if it is bi-lingual. "If you receive an English-only contract in the UK, you may be asked to sign a further, possibly slightly different contract in Arabic when you arrive," warns Mead. "So insist that your contract is bi-lingual before you leave here."

Lastly, find out as much as you can about your employer and get as much in writing as you can before you go.

MIDDLE EAST JOB OPPORTUNITIES

CONTRACTS SAUDI ARABIA=£ ANALYST PROGRAMMERS

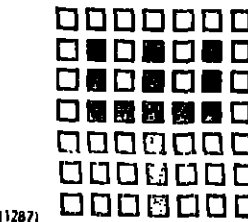
URGENT requirements for any of the following:

IBM PL1/COBOL
MARK IV APL ADF MVS
TSO/SPF IMS DB/DC CICS

Contact: BILL EVANS (0252) 516141
Trident Computer Services PLC
Trident House
38/44 Victoria Road
Farnborough Hampshire GU14 7UD
Telephone: Farnborough (0252) 516141

Mon.-Fri. 9 a.m.-5.30 p.m. Sat. 9 a.m.-1 p.m.

TRIDENT ARE LICENSED BY THE DEPARTMENT OF EMPLOYMENT AS AN
EMPLOYMENT AGENCY AND EMPLOYMENT BUSINESS.
LICENCE NUMBER: SE(01)480



SAUDI ARABIA

MARK 4 OS JCL TSO UTILITIES
Programmers

IBM OS/JCL TSO/SPF

Word Processing Librarian

PL/1 ANALYST/PROGRAMMERS
with any of the following

OS JCL ISO/SPF CICS IMS ADF MINI COMPUTER
STAND-ALONE SYSTEMS

SYSTEMS ANALYST WITH
STRUCTURED PROJECT

DEVELOPMENT METHODOLOGIES AND
STRUCTURED DESIGN TECHNIQUES
(Min. 5 Years' experience).

Call Kelly at COMPUTER SEARCH (Contracts) Ltd,
Hemel Hempstead (0442) 40761

Computer Search (Contracts) Ltd
Hamilton House, Marlowes, Hemel Hempstead
Herts HP1 1BB

Systems Specialists-£15-20,000+ tax free with excellent benefits

Kuwait- soon to house one of the most advanced DP centres in Banking

Kuwait has developed into a leading financial centre in the Middle East creating an attractive environment for the many expatriates working there. Our client, a leading bank and a main contributor to the situation, is now expanding its DP capability by the opening of a prestige new data centre, based upon IBM 4300 processors, which will be one of the most advanced installations in the Middle East.

Systems development plans are extensive and cover most aspects of the banking functions. A number of key appointments are to be made and successful DP professionals are to be brought in from the UK. These are looked upon as permanent appointments by the bank, based upon a year renewable contracts.

Project Leader

Automated Teller Machines are to be installed in all branches, and a person experienced in their implementation or similar on-line real time systems is required to lead the development team within the Retail Banking Group. Farnborough.

Team Leaders (2)

To control total teams in the development of new Credit and Billing systems. Experience in programming and analysis level is essential. These are team leaders in banking based on permanent contracts. Farnborough.

Systems Analysts (3)

To work on individual systems to be developed for the following areas: Financial Accounting using the MSA general ledger package; Foreign Exchange; and Customer Information Systems. Ref: W608-B.

Ideally, in-depth systems development experience in the above applications with an early programming background is desirable but we will consider candidates with strong general banking/financial experience.

The environment is IBM DOS/VSE and VM with CICS moving to MVS in the longer term, although desirable experience of IBM working is not essential.

Relevant application knowledge is particularly valuable for our clients.

Salaries will range in the region of £15,000-£20,000+ TAX FREE with annual and completed bonuses paid. A high standard of fully equipped family accommodation together with other very attractive individual benefits are provided.

There is an attractive career development opportunity for the commercially advanced and driven individual. For further information, please contact: Mr. J. G. Smith, Director of Staffing, The Director of Computing, 10 Reeves Mews, London W3 3PA.

Computer Tel: 01-242 9356

QATAR UNIVERSITY COMPUTER CENTRE DOHA - QATAR

The Computer Centre is newly established and developments will continue over the next two years in two phases. The first phase has already started. This includes the installation of a 1 MB Super-Mini (Wang VS90) and several terminals to service the teaching, research and administration areas. The second phase will involve the installation of a mainframe computer system to support about 150 terminals located in a new purpose-built Centre.

The Centre has vacancies for the following experienced staff:

1. Analyst Programmer

Basic Salary: Q.R. 5500-6250 per month

Applicants should:

- be Graduates in Computing or closely related subjects
- have 4 years' programming experience in a Commercial or University Administration environment, and 1 year's experience in Systems Analysis

Responsibility Includes: Analysis, Design and Implementation of Administrative Systems

2. Programmers

Basic Salary: Q.R. 4500-5250 per month

Applicants should:

- be Graduates with 2 years' experience in Programming

Job Includes Programming support to staff and students as well as implementation of packages

3. Computer Operator

Basic Salary: Q.R. 3750-4500 per month

Applicants should:

- preferably be Graduates but other suitably qualified candidates can apply
- One year Computer Operation experience is required

4. Data Entry Operator

Basic Salary: Q.R. 3750-4500 per month

G.C.E. qualification with good knowledge of English and good English/Arabic typing

In addition to the tax-free salaries, other benefits include:

- Special Allowance (20% approximately); transportation allowance; free housing; free air fares; generous holidays; and free medical care.

Applications are invited from suitably qualified staff: Arab nationals or those with working experience of the Gulf area are preferred. Please write, giving biographical details and your S.V. including education qualifications, experience, present salary and the names of two referees, to:

The Director of Computing
10 Reeves Mews, London W3 3PA

SAUDI ARABIA SOFTWARE/ HARDWARE PDP 11

To £24K Tax Free
DEC 11, 20/50 TOPS 20
Systems Programmers. All
DEC PDP 11 Computer
Hardware Engineers, Accom-
modation free, etc. Please Jif
Personnel, 01-666 6931, Agy. (1287)

FOR

CLASSIFIED

ADVERTISING USE

DIRECT LINES

RECRUITMENT
CONSULTANCIES

(01) 661 8787

DIRECT ADVERTISERS

(01) 661 8080

BOX NUMBERS

Box number applies should be
addressed to:

Box Number

Box Number

Box Number

DALROTH computer personnel

Our client, one of the leading Middle East software consultancy companies, has successfully tendered for several new contracts and will require over the next few months a number of additional staff.

New FM Projects

IBM and DEC based

Salaries £14-30,000 Tax Free

Two projects are 43XX based using DOS/VSE, CICS, DL/1 and COBOL with either DEC PDP 11 or VAX for the graphics elements. A number of internal company transfers will fill some vacancies. However, the Company will be looking for a PROJECT MANAGER, SENIOR SYSTEMS ANALYSTS, ANALYST/PROGRAMMERS, SYSTEMS PROGRAMMERS, an OPERATIONS MANAGER and a number of support staff.

A further contract based on 30XX running under MVS, using IMS and ADABAS has also been awarded. Similar staff to those indicated above will be required. Additional requirements will include a DATA BASE ADMINISTRATOR and a SENIOR TRAINING CONSULTANT. These positions based in Saudi Arabia, offer attractive Tax Free Salaries and excellent fringe benefits.

If you are interested in these or other positions in the Middle East please contact Jenny Dalrymple-Hay or Ian Murray West (day) 01-493 2947 or (evenings/weekends) respectively Beaconsfield (04946) 4579, Milton Keynes (0908) 563418, quoting ref. 8933.

DALROTH & PARTNERS LTD : A HALF MOON STREET : LONDON W1

BUICK COMPUTER SERVICES

SENIOR ANALYST(S) LONDON c£15,000 + car

Our client, a leading Software House is seeking a senior person to take a leading role in the pre-sales development of new commercial packages. The successful applicant will have several years' interactive systems design experience using mini computers. Ref: C3460
Two other vacancies exist for Systems Analysts with BASIC or RPG 2/3 experience, who are capable of handling a wide range of interactive software packages at the post-sales level, using various minis or IBM System/34 & System/38. An ideal opportunity to get into a rapidly expanding and lucrative market on a salary of £12,000+. Ref: C3461

SYSTEMS PROGRAMMERS £15,000 + benefits

This large manufacturing company situated in the London area requires a Systems Programmer with BASIC ASSEMBLER LANGUAGE & OS/VS1 or MVS experience, to take charge of a team of three. Excellent career prospects in a progressive environment. A number of other vacancies also exist in London and Home Counties for Systems Programmers with BAL, COBOL, or PL1, covering the spectrum of IBM systems software. Many of the fringe benefits are substantial. For further details, please phone quoting. Ref: A9492

RPG 2/3 PROGRAMMERS to CONSULTANT level to £15,000

A number of our clients situated in London/Home Counties and South East England are seeking Programmers and Analysts with two-three years' RPG 2 and/or RPG 3 experience, preferably on System/34 and/or System/38 equipment, capable of working on their own initiative. Applications include the specification, design and implementation of a wide variety of commercial online systems. Excellent prospects where your skills are put to effective use. Some of the benefits include subsidised mortgage scheme and profit share. Ref: A9606

PROGRAMMERS to PROJECT LEADER level to £14,000 + benefits

Fourteen of our clients situated in Middlesex, London and Kent are seeking development staff at all levels. Applicants will have at least two years' programming experience in COBOL or PL1 together with a track record in development of insurance, banking or other commercial applications. A knowledge of CICS would be an added advantage. Benefits range from bonus, profit sharing to mortgage facility, relocation, etc. Ref: C9457

SYSTEMS ANALYST CITY £14,000 + mortgage

A leading International Bank is seeking a Systems Analyst with at least two years' experience. The successful applicant will have at least one project to credit, from design to full implementation. COBOL experience is essential. Benefits offered include a MORTGAGE and interest-free loans together with other usual Bank benefits. Ref: B9511

SENIOR ANALYST/PROGRAMMER HERTS c£14,000

This large company is seeking a Senior Analyst/Programmer with at least three years' COBOL, CICS & DL1 together with two years' commercial systems design experience. Opportunity to progress in this rapidly expanding business. Ref: C8438
If you wish to look further afield, i.e. Saudi Arabia, to increase your earnings potential to £22,000, please phone for further details quoting. Ref: C9462

PROJECT LEADER C. LONDON to £14,000

The ideal applicant will help support VME/8 IDMSX TP, GEORGE 2/3 under CME, therefore experience of these will be an advantage. An excellent package is being offered, which includes managerial training, good annual leave allowance, career prospects, etc. For further details ring quoting. Ref: B9514

PROGRAMMERS SWITZERLAND £Excellent

Our client requires either FORTRAN/ASSEMBLER or CORAL/ASSEMBLER Programmers with two years+ experience to work in Switzerland. Applicants should have a degree in Engineering and preferably speak German. Knowledge of Real-Time Process Control an advantage. Ref: A9318

PROJECT LEADER MIDDX. £13,000 + car

Our client is seeking a Senior Analyst, capable of leading new projects from feasibility through to implementation. A financial systems background together with user liaison and supervisory skills are essential for this position. Excellent fringe benefits include provision of a company car. Ref: A9400

SENIOR SYSTEMS ANALYST LONDON £13,000 + Bank perks

This leading Merchant Bank needs someone with at least two years' systems design together with a programming background in COBOL and/or NEAT 3. The successful applicant will have taken a major system from feasibility to implementation. Long term security is offered together with excellent salary and benefits including mortgage, interest-free loans, etc. Ref: B9522

SYSTEMS DESIGNER C. LONDON £13,000 + Mortgage

Our clients, a leading financial organisation, are seeking someone with a minimum of three years' systems design experience, together with a working knowledge of IMS in an MVS/JES2 environment. An excellent package of benefits includes mortgage, profit share, and N.C. Pension. Ref: B9508

PROGRAMMING TEAM LEADER MIDDX. c£13,000

This large organisation is seeking someone with at least four years' PL1 experience who is capable of taking charge of a small team of Programmers. The successful candidate will probably already have responsibility for supervising junior staff, ensuring deadlines are met and standards maintained. Ref: A9347

SENIOR ANALYST BUCKS. c£13,000

A Senior Analyst with Financial experience is required to act as a Team Leader for this major IBM site in Buckinghamshire, preferably with an IBM COBOL programming background, the successful applicant must display good administrative and communicative skills. Ref: A9482

PL1 and COBOL PROGRAMMERS to £13,000 + benefits

A number of our clients situated in London and Home Counties, need Programmers with a minimum of two years' PL1 or COBOL experience for the development of real-time systems using CICS and DL1. A knowledge of CICS would be an advantage. Benefits include Bonus Schemes, cheap mortgage and insurance facilities. Ref: C9384

SYSTEMS ANALYST SUSSEX c£12,000 + superb benefits

This large international company is seeking an Analyst with at least two years' sound commercial systems experience to take an important role in the development of their applications using IMS. Excellent career prospects and superb fringe benefits are afforded by this company. For further details ring quoting. Ref: A9487

DATA COMMUNICATIONS CONTROLLER £12,000 + benefits

This major oil company requires an experienced Data Communications Controller at their London site, with a wide knowledge of IBM hardware/software including TP networking, to join their expanding team. Excellent fringe benefits include share purchase scheme, N.C. Pension, etc. (This vacancy is duplicated under "OPERATIONS".) Ref: A9369

PROGRAMMING TEAM LEADER £12,000 + bonus

An international leisure company situated in London is seeking someone with at least three years' IBM COBOL experience and a working knowledge of CICS, to lead a small team of Programmers. An ideal opportunity to take on more responsibility and a career challenge. Ref: C9407

D.P. CONSULTANTS HERTS. £12,000

Our client, a major manufacturing and distribution company within the UK, is seeking two D.P. Consultants to investigate and advise on its various commercial application areas and D.P. procedures within the Group. The successful candidates will have good communicative skills and will probably now be Senior Analysts with a sound knowledge of IBM hardware/software, and/or procedures and standards within a CICS/DL1 environment. Support Analysts and Programmers are also needed for this site. Relocation expenses are negotiated. Ref: A 9320

PROJECT LEADER BERKS. £12,000

Our client, an international manufacturing organisation, requires a Senior Analyst with Production and/or Financial systems to head up a Project Team, in an ICL 2900 environment. Excellent prospects. Ref: A9468

ANALYSTS & PROGRAMMERS BUCKS. to £12,000 + Mortgage

This major company is entering an expansion phase and currently requires additional D.P. staff. ANALYSTS with a minimum of 18 months' experience, preferably with a COBOL background. PROGRAMMERS with a minimum of 18 months' ICL COBOL experience preferably gained in development of real-time systems. Excellent fringe benefits include CHEAP MORTGAGE and RELOCATION. Ref: A9499

SYSTEMS DESIGNER LONDON £11,500 + bonus

This financial organisation is seeking a technically competent designer, who can take a system specification and convert it to the level of file design, program specifications, etc. A knowledge of PL1, CICS and database is also required for this important position. Ref: C9363

PROGRAMMERS to PROJECT LEADER level to £11,000

This company, situated in Hampshire, is developing its systems around TANDEM equipment and is currently seeking all levels of staff Programmers with two years' COBOL, to Analysts with a COBOL background and leadership skills, preferably in a TANDEM environment. Experience of PATHWAY would be an advantage. Ref: C8477

PROGRAMMER (ANALYSTS) £10,500 + Profit share

Our client based in London, is seeking two Programmers with at least two years' COBOL experience (preferably IBM), to work on the development of online/database financial applications. These positions would ideally suit those wishing to put their Applications knowledge into practical use at the design level. Excellent prospects and remuneration package. Ref: C9383

COBOL PROGRAMMERS LONDON → BUCKS c£11,000

The ideal people sought should have a minimum of two years' COBOL preferably on-line and particularly in a financial environment. Many attractive monetary benefits apply including MORTGAGE, Free BUPA, etc. The site will be relocating to Buckinghamshire in the spring of 1983. Ref: B9513

BASIC+ PROGRAMMERS to £11,000 + benefits

We have a number of vacancies in London and Home Counties for Programmers, and Programmer/Analysts with a minimum of 18 months' BASIC + AIMS or BASIC + 2 experience, with the opportunity of working on a wide variety of commercial and scientific systems. Excellent opportunities for career progression, plus attractive fringe benefits include low interest mortgage facility, bonus schemes, and free BUPA. Ref: A9523

ANALYST/PROGRAMMERS MIDDX/ESSEX to £11,000

A number of our clients need Analyst/Programmers with a minimum of two years' COBOL programming experience, preferably using IBM equipment. Application areas are diverse, and excellent opportunities exist within these different types of organisations. Ref: A9488

RPG 2/3 PROGRAMMER SURREY to £11,000

Our client, a leading manufacturing company, wishes to recruit someone with RPG2 or RPG3 expertise to work on development of their real-time applications. Any level of experience will be given consideration, and where applicable, training will be given in RPG3. Many attractive benefits include discount scheme, subsidised restaurant and active sports and social club. Ref: B9512

Tel. 01-834 5923 (Daytime)
01-834 0061 (24-hours)

Or call evenings and weekends
REF. A: 01-690 5046
REF. B: 01-794 5937
REF. C: 01-942 1178



This above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives.

BUICK COMPUTER SERVICES

OPERATIONS

FORTRAN SPECIALISTS LONDON/HOME COUNTIES to £11,000

Programmers are required to join existing development teams to work on a variety of applications including scientific research, engineering and commercial projects. Good fringe benefits. Ref: C9360

ANALYST/PROGRAMMERS MIDDX/BERKS. c£10,500

Two large organisations need someone with an IBM COBOL programming background to assist in the development of their online applications, using 4300 equipment under OS/VS1. Systems software training will be given where necessary, and responsibility will be given for the supervision of junior staff. Ref: C9335

LECTURERS ESSEX c£10,500

Are you an experienced Lecturer, able to communicate effectively and prepare and present courses? If you also have a programming background, our client may be interested in discussing a challenging career in D.P. training within their organisation. Ref: A9376

ANALYST/PROGRAMMER C. LONDON £10,000 + travel

A major International Bank are seeking someone with approximately three years' experience as an Analyst/Programmer using COBOL for their European Division. Priority will be given to those with Banking experience together with DEC/VMS and MACRO 11. Regular visits to the Bank's European Branches are part of the position's conditions, therefore the ability to liaise at all levels will be an advantage. Excellent benefits include MORTGAGE facilities, interest-free loans, N.C. Pension, etc. Ref: B9509

ICL COBOL PROGRAMMERS SUSSEX to £10,500

As a result of expansion plans, our client is seeking Programmers with a minimum of 18 months' ICL COBOL experience to take an important role in development of new systems. A knowledge of VME/8 would be useful, but not essential. Ref: A9486

SENIOR PROGRAMMER CITY £10,000 + Bank perks

A leading Merchant Bank are seeking someone with a minimum of four years' NEAT 3 experience under VPM. A working knowledge of COBOL will be an added advantage. Database experience is preferred together with some supervisory experience. Long-term security is offered together with excellent salary and benefits including MORTGAGE, interest-free loans, etc. Ref: B9507

BAL/COBOL PROGRAMMERS ESSEX £10,000

This financial organisation is undergoing an expansion phase within DP and currently needs Programmers with COBOL and/or ASSEMBLER experience. A knowledge of DOS/VS and CICS is a plus, but CICS training will be given. Ref: A9486

SYSTEMS PROGRAMMER S. WALES to £10,000

Our client, a leading European manufacturing company, are seeking someone with a minimum of 18 months' DOS/VS(E) experience to assist, initially, in the conversion of IBM 370 to 4341 range. Large company benefits apply, together with full relocation where applicable. For further details, call us quoting. Ref: B9515

PROGRAMMER LONDON to £10,500

Our client is seeking a Programmer with at least two years' COBOL experience, preferably using BURROUGHS equipment. The successful applicant will be involved in the development of a number of commercial online Systems using the latest equipment and software. Ref: C9471

ICL (ANALYST) PROGRAMMERS HERTS./MIDDX. to £10,000

These famous manufacturing companies require Programmers and Analysts/Programmers to take a leading role in the development of a number of small to medium-sized commercial systems. Applicants must have about 18 months' COBOL, together with a working knowledge of ICL 1900 or 2900 systems software. Ref: A9528

DEC PROGRAMMER/SUPERVISOR MIDDX. to £10,000

An experienced DEC Programmer with at least two years' BASIC+ experience and a knowledge of RSTS who wants to make the step into administration is required by our client as an Operations Supervisor. Ref: A9341

SYSTEMS & APPLICATION PROGRAMMERS £9,500 + Bonus

This major financial organisation in Hampshire is undergoing a redevelopment phase with introduction of new hardware. As a consequence, the company is seeking an Applications Programmer with two years' COBOL (any mainframe), and a Systems Programmer with ASSEMBLER and DMS 1100, EXEC 8 or TIF. Excellent company benefits are afforded, including profit sharing, annual bonus and relocation, where applicable. Ref: C9365

SYSTEMS ANALYST KENT COAST c£9,300 + Benefits

This company needs an Analyst preferably with a COBOL programming background, to take an important role in the development of their financial applications. The company offers superb fringe benefits which include CHEAP MORTGAGE AND RELOCATION. Ref: A9472

COBOL PROGRAMMERS BERKS. £9,000

This expanding financial organisation needs Programmers with 18 months' COBOL experience, preferably using IBM equipment, and offers excellent career prospects and fringe benefits in an OS/VS1, VM environment. Ref: A9494

JUNIOR PROGRAMMERS c£8,500 + Profit share

Two of our clients, situated in Middlesex and London are seeking Programmers with 12-18 months' IBM COBOL experience to join their friendly young teams. Training in CICS will be given. Excellent benefits and opportunities. Ref: C9392

DEC PROGRAMMER ESSEX £8,500 +

BASIC+, BASIC+two Programmer with RSTS experience required to join a small team in Essex. Excellent opportunity for the right person to become an integral part of the organisation's future career prospects brilliant. Ref: A9388

Tel. 01-834 5923 (Daytime)
01-834 0061 (24-hours)

Or call evenings and weekends
REF. A: 01-690 5046
REF. B: 01-794 5937
REF. C: 01-942 1178



The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives. (1254)

If it is inconvenient to telephone us, please complete this FREEPOST slip and send it to:

BUICK COMPUTER SERVICES
FREEPOST
LONDON SW1P 1YY

NAME:
ADDRESS:
Ref. No(s):
Home Tel:
Work Tel: (with location)

DEC Prog/Analysts

Beds. to £10,000
The working environment, the company and its products all rate A.1. with this client. Experienced RSK11/Macro 11 programmers will enjoy working on applications and systems for computer controlled analysis and measuring instruments. There are opportunities in special systems and standard product development. A physics degree would be useful. Some international travel.

S/W and H/W Designers

N.Herts. c. £9,000
Working in the area of real time systems in automation applications, our client has a long established reputation for quality products. Additional experience is sought for a number of teams. Programmers will work at systems software level in Assembler plus high level language. Engineers will work on Motorola based interfaces for automation systems. Previous design experience required.

Office Systems

Swindon £ Neg.
Our client is a manufacturer and supplier of sophisticated micro based office systems. They have the following vacancies:
S/W Designers
H/W Designers
Production Engineers
Sect. Leader Asst. bly Development Coordinator
Q.C. Validation Supervisor
P.D.S. Engineer
Supervisor Goods Inwards
Test Methods Engineer.

UNIX Programmer

Herts. to £11,000
If you are a systems software programmer with experience working on a UNIX system, this could be your chance to give your career a significant boost. Our client wishes to appoint a UNIX specialist to join their engineering software group with responsibility for the in-house UNIX systems. DEC PDP and VAX experience useful. The successful candidate will be responsible for maintaining the system and for adding new facilities.

Support Programmer

Herts. c. £9K + car
We are seeking an experienced programmer who has the interest in and the aptitude for sales support. The work involves visiting client premises to provide advice, assistance and internal training to users. You should have commercial applications experience and preferably a knowledge of DEC/DIBOL. The client has a range of equipment which could provide wide interest.

Applications Development

W. Herts. £8K-£12K
A well established mini computer manufacturer is expanding its technical development teams within the applications development group. Candidates are expected to liaise with clients in systems design and implementation. Experience in CORAL 66, or other block structured language is essential. Knowledge of M6800 micro range desirable. Positions exist for Programmers to Senior Designers.

Field Engineers

London area c. £8K + car
When the work of a field engineer in the micro based systems of today is similar from company to company, why change jobs? Not all companies are the same. If you would like to be in a sound, attractive company which has excellent products, a first class reputation and believes in its people, this is your chance.

Comms. S/W Design

Herts. to £12,000
Develop your career and your existing communications software skills by joining a company already firmly established in this high growth sector of the computer industry. We are seeking software people with experience in developing 3270 compatible systems and as much experience as possible in X.25 and L.A.N. products. Attractive new office premises. Excellent prospects.

Sales Exec S/W Products

London to £20,000 O.Q.
A leading international software company is expanding its sales team in the fast growing software market. We would like to hear from people with sales experience who have in-depth knowledge of database systems, or similar. Many prestigious reference accounts available. Extensive product training given. The client has a highly respectable name in the industry.

Sales Execs. WP. and L.A.N.

London and Wilt. O.Q. £15K + car
Experienced sales people are required for our clients' office systems products. The W.P. sales person will operate from Swindon developing new business. The L.A.N. sales person will cover OEMs and advanced end users. Good computing and systems background necessary. The company has a well established name and excellent reputation with a strong technical backup capability.

Sales Exec Eng S/W

London O.Q. £18K + car
Ideal candidates will be graduates from Chemical, Civil or Mechanical Engineering. Your task will be to sell a wide range of applications software to engineering users in your own discipline. Our client operates an international bureau giving clients access to massive computing power. Previous sales experience not essential but computing knowledge is.

Sales Exec S/W Services

S. Essex. O.Q. £15K + car
Our client is a software house specialising in technical and scientific applications. They are seeking a sales person with a minimum of one years experience to join their team. The company has a reputation for high calibre staff who have above average experience in their field. Their business is in the mini (DEC) and micro applications area.

Project Manager

Herts/Beds. to £14,000
There is an opening in a large and expanding development centre for an experienced systems software development person to enhance his/her career. We would like to meet people with good operating system software design experience capable of managing several teams in this area. You will be technical with man management skills. Reloc. assistance given.

Team Leader Comms S/W

Beds. c. £11,000
We would like to meet candidates with a background in communications software development preferably gained with a manufacturer or systems house. You should be familiar with the common blaync protocols and ideally have knowledge of X.25 and L.A.N. You will be given people and project responsibility in a strong engineering development group. Reloc. assistance possible.

Customer Support Progs

Herts. £8K-£12K + car
Our client is experiencing dramatic growth due to the attractive and versatile nature of its 16/32 bit mini product line. They have a long established customer base and are very securely backed. We are seeking experienced programmers with knowledge of distributed data processing, applications and computer communications to provide pre and post sales support.

Software Specialists

Oxon to £14,000
A major international systems house with an outstanding reputation in software design and development is seeking a range of people from programmers to project managers. We are interested in meeting people with a strong computer science background who wish to work on compilers, utilities and development aids. Relocation assistance will be considered.

Recruitment Consultant

Amersham £10K-£16K+
If you are bright with a friendly, gregarious nature and have sound experience gained in the computer industry, you could be suited to a career in recruitment. You must have confidence in dealing with people at all levels and be interested in helping others. Age 25-35 years. Attractive earnings are totally related to effort.

Technical Support S/W

W. Essex. £12K-14K + car
Take this opportunity to join one of the most successful computer companies of our time. You will need several years technical software experience to include: real time, data communications and/or database systems. Analysts with banking or financial systems experience would also be of interest. You cannot fail to be impressed by this client. Higher salary but no car for City office location.

S/W Dev Manager

N.H. Counties c. £15K + car
Ideally, candidates will have experience in systems software development gained with a computer manufacturer, line management and a user environment. He/she will join a close-knit team where new ideas are sincerely welcomed. Main areas of responsibility are already mapped out. You will need a positive attitude to service and will believe in quality development. Excellent benefits.

Electronics Development

Cotswolds to £11,000
An electronics product development company with attractive modern premises in a pleasant Cotswold town requires engineers for new international applications projects. Development engineers in analogue, digital and microprocessor systems (H/W and S/W). Transducer engineers in high volume high reliability applications for analogue interface circuit design. Small co. environment with strong large parent. Reloc. assistance possible.

Open letter to technical and commercial job seekers at all levels:

Write or telephone (02403) 28383 during office hours - we are always ready to discuss these and many other interesting positions.

Evenings and weekends only: Terry Harvey - Great Missenden (02406) 4705

H. R. Associates Limited

Executive, Computing and Technical Personnel Consultants
Hill House, Hill Avenue, Amersham, Bucks. HP6 5BQ Tel: 02403 28383
London office: Regent Street, W1

Choose Your Computing Career ...in the City

25SUN3-CW
(Adv. No. 4014)

Call in and see for yourself

Grindlays is an International Bank with its Head Office in the City and with branches and offices in 40 countries around the world.

In London we use IBM 4331, WANG VS and DEC 11/44 equipment to meet our Data, Transaction and Information processing needs. We have started the process of integrating these components and the expansion of this programme has created a number of exciting career opportunities.

Overseas, we provide systems, support and guidance on a package basis. Based on the IBM System 34 our use of inhouse developed packages and the MIDAS system is expanding rapidly, creating further opportunities.

Grindlays is committed to the use of automation for improving both the range and quality of its customer services and in the management of the company itself. We are some way along that path but have many challenges ahead of us. Can you help meet those challenges?

Project Leaders up to £14,500

Probably aged 25-40 you will have spent several years designing and implementing systems in the finance industry. Ideally you will have had some experience of FX/Money Market, Funds Transfer and Letters of Credit systems or the MIDAS software package. Equally important will be your team leadership, project control and communications skills.

Senior Systems Analysts up to £12,000

You will have had several years' experience in the investigation, specification, testing and implementation of systems in the finance industry. A knowledge of the IBM 4331, IBM System 34 or WANG VS equipment and systems for Bank Accounting and Transaction Processing will be an advantage.

Analyst/Programmers up to £11,000

The design and development of integrated data processing, text processing, personal computing and communications systems is a key element in our use of automation.

You will have had several years' analytical and programming experience in the COBOL, RPG or BASIC languages and be familiar with the WANG VS, WANG 2200, IBM System 34 or DEC 11/44 (RSTS/E) equipment.

In addition to the indicated salary levels we offer excellent benefits that include:
* subsidised mortgage
* low interest personal loans
* interest free season ticket loan
* non-contributory pension scheme
* subsidised staff restaurant

Visit us on

WEDNESDAY
20th October
THURSDAY
21st October

any time between 11.00 am & 7.00pm.

We look forward to seeing you for informal discussions on our plans and the part that you could play in making them a reality.

If you can't make it on these dates please telephone or write to Mrs. Anne De Saxe on 01-626 6599 for an application form



Grindlays Bank p.l.c.
23 Fenchurch Street,
London EC3P 3AS.

(1278)

URGENT CONTRACTS

IBM MVS Mark IV
VAX/CORAL 66
IBM SYS 34 (overseas contracts)
IBM MVS BOS
DOS/VSE COBOL CICS
OS/COBOL CICS (UFO useful)
VAX FORTRAN (Database)
Z80/RM 380Z Expert
DG MV 8000 FORTRAN (Seismic)

NOV START
NOW
NOV/DEC
NOW
NOV START
NOW
NOW
NOW
NOW
NOW

MONTREAL ASSOCIATES (SYSTEMS) LTD
01-553 2944 (4 lines) emp. agy.
98-100 HIGH ROAD, ILFORD, ESSEX IG1 1DS

(1283)

SYSTEMS MANAGER PDP AND CAD SYSTEMS

The Global Engineering Group has offices in 15 locations worldwide serving the oil and gas industry as consultant engineers. Its London headquarters office is continuing its expansion from its new offices in Sutton, and consequently the company anticipates a major capital investment in computer systems to support its expansion.

We are looking for a Systems Manager, as a new staff position, to join the company at a senior level to take over responsibility for all our present systems, and organise these into an efficient service for our technical department.

Immediately, we require the development of plans and strategy for the acquisition of CAD systems. We will look to the Systems Manager to plan all stages of this acquisition, and establish the necessary organisation for its eventual implementation.

The applicant should be enthusiastic enough to get to grips with all our present EDP systems which includes word processors, minis and micros, with considerable bureaux utilisation, and to co-ordinate programming, operations and training, as well as sufficient expertise to lead the CAD development.

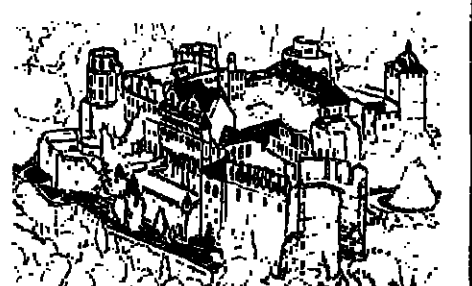
The right individual may expect an appropriately high remuneration and benefits. Occasional visits to our other offices to advise on system implementation may be required.

Please forward C.V. for the attention of:
K. S. Doherty (Marked Computer Vacancy)
Managing Director
GLOBAL ENGINEERING LTD.
3 Throby Way, Sutton, Surrey

(1288)

GERMANY

The company - part of a highly successful multinational based in the USA - markets a range of advanced products in Germany and its success has led to the creation of this new post. The EDP Manager will lead the development of new systems, particularly in the fields of sales and marketing information, materials management as well as financial and accounting. Existing systems run on IBM System 34 hardware on-line. System development is carried out both at the European EDP centre and at Heidelberg where there is a small staff. The EDP Manager must establish good links with user management and the European EDP centre staff; he will manage the department and carry out systems and programming work. Having recently visited this client, we strongly recommend the position as a positive career step with a thriving international company in a beautiful location.



DP Manager

IBM S34; RPG II and COBOL; Multinational Group

Profile

The ideal candidate will be an innovator with a positive personality, who is flexible, diplomatic, persuasive and user oriented. With some supervisory experience, probably aged between 28-38, he will need technical skills in analysis, design and programming (IBM System 34, RPG, COBOL etc). He will speak fluent English (and possibly some German or be willing to learn) and will now probably be working as a project leader or consultant.

possibly more, in the UK to significantly improve his standard of living.

INTERVIEWS Initial interviews will be held in the UK during the week beginning 26th October followed soon after by interviews in Heidelberg for shortlisted candidates. The start date is 3rd January 1983.

The time scale is tight so please ring, as soon as possible, Neville Jolin or Alison Jary on: (0270) 627208 (office) or (0270) 213118 (N.J.) or (0270) 625436 (A.J.) other times. Ref: 219/CW

Salary and Benefits

An excellent salary will be offered including a good relocation package. The figure offered will allow a candidate earning up to £12,500, or



Specialists since 1971 in UK and International computer & technical appointments

OCC Computer Personnel
5 Hospital Street
NANTWICH
Cheshire
(0270) 627 208

0270 627 208

SYSTEMS AND PROGRAMMING

EMJAY
COMPUTER
SERVICES



JUNIOR PROGRAMMER COBOL

Six months commercial (not industrial placement). COBOL experience a must. Work on an IBM site using DOS/USE and CICS. IBM experience not essential but COBOL large mainframe essential. Enjoy good company benefits, career opportunity and security.
Salary: £6,000-£7,500

Contact Fran at Emjay

PROGRAMMER

Your job? You have 3 years' COBOL (preferably on mini machines). You want some analyst work with a lively team. You have worked in a time sharing environment and you are dynamic.
Salary: £10,000

You ring Fran at Emjay

ANALYST

3 years' RPG II/System 34. Visit users in a consultancy type role. Experience of feasibility studies through to design and implementation is a must. Some travel (on a day to day basis). Handle client relations in a confident way. Ready for the challenge?
Salary: £10,000

Ring Fran at Emjay

SENIOR PROGRAMMER PL1

This is an important career step, with increased responsibility. Good PL1 and supervisory skills will bring superb company benefits.
Salary: £10,000

Ring Fran at Emjay

SYSTEMS PROGRAMMER

MVS. 2 years' experience of systems programming/MVS could get you recognised. The greater your expertise/seniority the more this go-ahead company needs you. A vital role in the development of TP software will lead to other opportunities. Great company benefits.
Great salary to £12,000

Talk to Fran at Emjay

PROGRAMMER PL1

This excellent programmer will become an Analyst/Programmer. We require over 18 months PL1 (database a positive advantage). Immediately he will work within an analysts role. His professional, confident attitude will be invaluable in communication with other people.
Salary: £8,500

If this sounds like you ring Fran at Emjay

PROGRAMMER

COBOL. Step up to Analyst/Programmer. 2 years' experience on an IBM/COBOL site necessary. VM/CMS, CICS and PL1 experience are all advantageous.
Salary: £9,000

Step up now! Call Fran at Emjay

SENIOR PROGRAMMER

2 years' CICS. High standards required. Work involves application programming. Responsibility, a great career and security all provided. DL1 an advantage. Your expertise will be well rewarded.
Salary to £11,000

Impress Fran at Emjay

OPERATIONS

NETWORK OPERATOR

1 years' experience needed as Network Operator. Knowledge of Network Management System, i.e. CMS and experience of large Network Environment necessary. Use of diagnostic equipment wanted as well as good working knowledge of CICS. DOS an advantage. Great company, prospects and perks.
Salary: £7,600

Contact Maggie at Emjay

OPERATOR

IBM/DOS. 1 years' experience required. IBM 4300 DOS/VSE (VM preferred). 3-shift system. Central London site. Excellent perks.
Salary: £8,700

Contact Maggie at Emjay

TECHNICAL SUPPORT

OS/JCL. Knowledge of IBM facilities, i.e. IMS, VM, CICS, TSO essential. First line support role therefore must be technically competent. Ability to talk to people. Must be well presented. Excellent benefits.
Salary: £9,000

Speak to Maggie at Emjay

SENIOR OPERATOR

OS/MVS JS2. 2+ years' experience. JCL knowledge an advantage. Good promotion prospects. Professional site. 3-shift system.
Salary: £8,000

For a career with security - call Maggie at Emjay

TELEPHONE: 242 0076 (24-hour Ansafone)
404 4339

Emjay Computer Services
Lonsdale Chambers
27 Chancery Lane
London WC2

SENIOR SALES EXECUTIVES

FIVE-FIGURE BASIC GUARANTEE QUOTA £28,000
LONDON/HOME COUNTIES

In 1981/82 our client enjoyed:
RECORD-BREAKING TURNOVER GROWTH AND
PROFITABILITY
THE TECHNOLOGICAL ADVANTAGE OF THEIR
OUTSTANDING FAIL-SAFE DUAL PROCESSING SYSTEM
Already in '82/83:
NEW ORDERS ARE RUNNING AT DOUBLE
LAST YEAR'S LEVEL
COMPANY RECORDS IN ALL AREAS WILL BE BROKEN AGAIN
Success in competitive knockout and new business made
possible by exciting new products has laid the foundation for
further growth now!
Senior Sales Executives joining now must have the capability
and the ambition to develop quickly into new roles.

In the short term YOU WILL ENJOY:
COMMISSION EARNINGS UP TO 6%
GOOD BASIC SALARIES
EXCELLENT SOFTWARE AND SUPPORT
THE BEST SYSTEMS AVAILABLE
Are you looking forward to success in 1983?
Call now Ref. CS 1258.

(1290)

AB EXECUTIVE (WEYBRIDGE)
0932 41321

Support Analyst Programmers

Neg. to \$12,000 plus car

We are a fast growing Honeywell and Wang Systems and Software House. Our specialty is in commercial applications as part of turnkey systems whilst providing software consultancy skills to a large number of international corporations.

Due to a considerable increase in both our UK and Overseas activities we now require Support Analyst Programmers of a variety of levels up to Project Leader.

If you are highly motivated, willing to accept immediate responsibility and can work happily alone or as part of a team then we could be right for you.

For people familiar with real-time minicomputer systems using BASIC, COBOL or SCREENWRITE the opportunities are tremendous. If you can demonstrate these qualities, please send your CV to Stuart R. Allen, Technical Director.

ADS (Computers) Limited
2 The Grove Slough SL1 1BP
Tel. Slough (0753) 78567

(1277)

ADS

Computer Weekly
reaches more
Operators than
its nearest competitor

OPERATORS

SUNDERLAND POLYTECHNIC

Faculty of Science
Department of Mathematics
and Computer Studies

DID YOU KNOW SOMEBODY DOES

TEACH COMMERCIAL DATA PROCESSING?

We are a polytechnic specialising in vocationally-oriented data processing courses at degree and sub-degree level.

We are interested in data processing professionals with a minimum of about five years experience, and a degree of its equivalent, to fill a number of vacancies at lecturer 11 or senior lecturer or principal lecturer level. Candidates having experience in one or more of the following areas would have an advantage: Database Systems, Transaction Processing Systems, Computer Networks, Microcomputer-based Systems, Financial Modelling Applications.

Salary scales:
L11 £11,500-£15,172 BAE £10,22
SL £10,172-£11,504 BAE £12,10
PL £11,504-£13,250 BAE £16,10

An application form and further particulars may be obtained from the Personnel Officer, Sunderland Polytechnic, Langham Tower, Ryhope Road, Sunderland, SR2 7EE or telephone Sunderland 76251, ext. 11. Closing date 25 October 1982.

(1278)

FOR

CLASSIFIED

ADVERTISING USE

DIRECT LINES

RECRUITMENT

CONSULTANCIES

(01) 661 8787

DIRECT ADVERTISERS

(01) 661 8080

PL1 PROGRAMMER

With minimum three years' experience on IBM Systems for leading service company based in North London. Excellent career prospects. Salary negotiable.

Ring Mr Roy CLESHAM EMPLOYMENT
01-444 0954

(1281)

SMR

Sales & Marketing Recruiters Ltd

A Sales & Marketing Recruitment Company

SALES EXECUTIVES

TIME TO CONSULT THE SPECIALIST?

When you are dealing with the major factors in your life you can only afford the best, and few things are more important than the development of your career. Certainly that is how the major computer manufacturers feel about their personnel selection and why such companies as CONTROL DATA, COMPUTER TECHNOLOGY, DATA GENERAL, HONEYWELL, PERMUM, ELMER, REDIFUSION, SPERRY UNIVAC and many others continually use our organisation for the recruitment of experienced sales people.

We fully understand the needs of such companies as well as knowing about the many job opportunities that never appear in the press. These well respected names depend on our professional skills and confidentiality. Can you afford less?

Contact: Alan Williams
Peter Hulse or Alison Scott - ADV TIME

(1170)

LONDON & SOUTH MIDLANDS & NORTH

20 Oxford Street 20 Oxford Street

London WC1A 1PL London WC1A 1PL

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

SALES & MARKETING RECRUITMENT

Quality of Management - 26

Those boring records are a matter of self-survival

LAST week I discussed the three basic documents for achieving effective control of a sales territory: Client records, call plans and call reports.

Let's take a further look at client records. Imagine a client urgently needing help while the salesman is away sunning himself in the Mediterranean: the irate client phones the office and the salesman's secretary takes a message in his absence:

"We have just received a communications modem which doesn't appear to have the transmission characteristics we were expecting. This is urgent! Can you send someone round to sort out the problem please?"

The secretary gets the name of the company all right, but not the name of the caller. She then reports all of this to the sales manager. No problem, the salesman's client records are scanned, quickly revealing the company's address and telephone number, the name of the chief engineer, a note of the order taken on the last visit and department-head with the requirement for a high speed modem.

It is now a matter of checking with the despatch department to see what has been sent. Then, having asked for the appropriate department-head by name, the sales manager is quickly able to deal with the problem.

Yet, without established records, things could be quite different. The despatch documentation might reveal some information, but:

1. Who actually ordered the product?
2. In what circumstances was it ordered? Was it understood to be a trial?
3. Were the despatch details correct? Is address, correct version of product, etc.
4. What are the names of the people involved and their responsibilities?
5. Was any support promised? If so, what?
6. For what purpose is the product being used?
7. Was a detailed proposal ever submitted that might provide some useful background?
8. Were any alternatives discussed?
9. Did the salesman actually take the order, or was it someone else?
10. Up-to-date client records could answer many, if not all, of these questions and help someone who has no prior knowledge of the situation.

Once this kind of system has been set up it is relatively simple to maintain, for most entries are but a few written words plus dropping into the file any relevant material that may transpire.

When preparing a call, all the salesman has to do is pick up the file and all he needs to know is there. For anyone picking up the threads there is all the detail of action and background to provide real continuity.

The whole process of maintaining effective client records is a question of both personal discipline and self-survival. It may be a struggle and a bore when you first start out, but very soon it will become so much second nature that you will wonder how on earth you managed to survive without them.

Come the next recession, may be you won't!

Alan Williams

COURSES

MSS has several courses lined up for November and December, to be held at its training centre in Worthing. November courses include:

Computer in Purchasing, Basic Fortran Programming, Database Concepts and Cobol Programming for the Experienced Programmer. For December: Inventory Management and Control, Computer Appreciation for Management and Users, Basic Cobol Programming.

Appreciation for Beginners are on the agenda. Details from MSS Centre on (0903) 34755.

PUZZLE ANSWER

37081
37081 +
74162

37091 + 37091 = 74182 also

NEW MULTI-MINI PROJECT

Our Client is a leading commercial organisation, part of a large British group of companies, based in Central London. They are developing sophisticated new on-line applications to run on 4 loosely linked Honeywell DPS6 model 76 minis, with 15 256 mb disc drives, 4 printers, 4 tape drives and up to 100 TDS colour terminals. The system has been designed around a comprehensive underwriting, claims and accounts system. They now need the following additional computer professionals to further develop and install the systems.

SENIOR PROGRAMMER/ANALYSTS
1-2 YEARS' EXPERIENCE

For the Senior Programmer positions candidates should have a sound DP background to include a good working knowledge of Honeywell DPS/LEVEL 6 using COBOL and/or SCREENWRITE.

The programming positions are open to candidates with 18 months' experience, some of which should have been gained on a Honeywell DPS/LEVEL 6 machine.

Specific knowledge of insurance or on-line applications will be advantageous.

The Client has now reached a critical stage in the project and is dedicated to recruit the right individuals to join a young and dynamic team.

To find out more about these excellent career opportunities please contact Mike Harmer.

PROGRAMMER/ANALYSTS
1-2 YEARS' EXPERIENCE

- MORTGAGE SUBSIDY (after qual. period)
- TRAVEL SUBSIDY
- PENSION AND MEDICAL SCHEME (after qual. period)
- INSURANCE DISCOUNT
- MEAL ALLOWANCE
- FLEXITIME (based on 33-hour week)
- SPORTS AND SOCIAL CLUB

This is just a small selection of current requirements; for details of these and others not advertised call us now.

APEX COMPUTER RECRUITMENT LTD

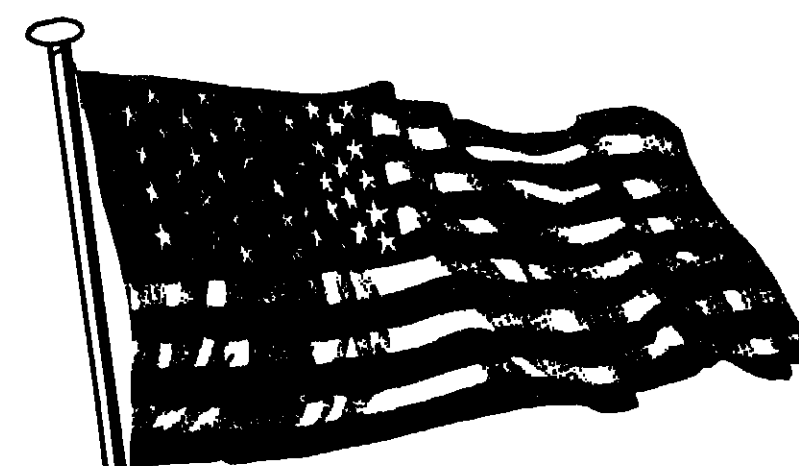
LONDON
59 Gresham Road
London WC1X 8TL
Tel. 01-404 4821, 24 hrs.

BRUSSELS
Rue Gatti de Gamond
Uccle 1080 Brussels
Tel. 010 322 377 4613

OPPORTUNITIES IN THE U.S.A.

IBM COBOL
+
CICS or IMS

VAX/PDP
BANKING



up to \$50,000

We have a number of on-going requirements for clients on both the East and West coasts for experienced IBM professionals. A good commercial or financial background is required.

Programmer/Analysts with a financial applications background required for New York or Europe, according to preference. In addition to the generous basic salaries, benefits will include a comprehensive relocation package. Two vacancies also exist for applicants with similar experience gained on PDP hardware.

WARWICK
WOODWARD
INTERNATIONAL

43-44 GREAT WINDMILL STREET LONDON W1V 7JA
TELEPHONE: 01-734 7394 (24 HOUR ANSWERING SERVICE)

Please contact Louise Romain on 01-734 7394, or on 01-407 2531 evenings.

ANALYST/PROGRAMMER
1-2 YEARS' EXPERIENCE

Our Client, a well-known company in the retail business, wishes to recruit an experienced Analyst/Programmer. They are an established computer user and have a variety of applications running on their HP 3000 with major developments planned for the future.

Applicants will ideally have a sound DP background to include around 3 years' COBOL programming and an in-depth knowledge of Hewlett-Packard systems and software. The successful candidate would shortly assume the position of Assistant Computer Manager and should therefore be able to communicate at all levels. In return our Client offers an excellent starting salary and package, which includes a company car and N.C.P.S.

If you are self motivated, looking for a challenge and would enjoy working in a small friendly team environment contact MIKE HARMER at APEX for further details.

APEX COMPUTER RECRUITMENT LTD

LONDON OFFICE
59 Gresham Road
London WC1X 8TL
Tel. 01-404 4821, 24 hrs.

BRUSSELS OFFICE
Rue Gatti de Gamond
Uccle 1080 Brussels
Tel. 010 322 377 4613

ANALYST/PROGRAMMER
1-2 YEARS' EXPERIENCE

Our client is a well-established software house and is currently looking to recruit a salesman to promote complete systems to companies in the fashion trade.

The ideal candidate should not only have an interest in new computer technology but want to get involved in selling systems and managing pre- and post-sales support. A good knowledge of computer applications would be an advantage but specific fashion industry training will be given. Candidates will be self motivated, have the ability to communicate at all levels and compete in a dynamic fast-moving market place.

A good basic salary and attractive commission scheme would ensure that the successful applicant can expect to earn in excess of £15,000 per annum in their first year.

For more details please contact Dave Bowman.

APEX COMPUTER RECRUITMENT LTD.

LONDON OFFICE
59 Gresham Road
London WC1X 8TL
Tel. 01-404 4821, 24 hrs.

BRUSSELS OFFICE
Rue Gatti de Gamond
Uccle 1080 Brussels
Tel. 010 322 377 4613

Upgrade to Sales or Sales Support

— with one of the World's Leading Independent Software Suppliers

Having gained a superb reputation for the supply of both applications and systems software packages to the American IBM user community and, having achieved significant penetration within the UK, our Client is now poised for further expansion, thus necessitating the appointment of additional Sales and Sales Support Staff.

Sales Executive

£20,000 + p.a. from realistic quota + car

The ideal specification would obviously be an experienced Software Salesman with sound knowledge of the IBM mainframe market place, but we are equally prepared to consider training the sales orientated individual possessing the necessary technical and personal attributes to succeed in a competitive and demanding environment.

Sales Support Technician

c £15,000 p.a. + car

The same degree of flexibility will be applied to the selection of the candidate for this position — if you are currently employed in a software support capacity with a computer manufacturer, service company or IBM mainframe user where you have gained technical exposure to either OS or DOS operating systems, you will be considered a serious contender.

Both positions demand above average personal qualities from individuals with the self confidence and technical awareness to appeal to existing and potential customers at management level within large IBM installations.

For consideration and an immediate reaction to your suitability, contact our Advising Consultants, Andrew Carter or Renée Nute on 01-935 0671 (24 hour answering service) or 01-874 6372 (evenings up to 9pm).

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH
Jenny Hooper, 40 James Street,
London W1M 6BS
01-435 0671/440 0461

MIDLANDS & INTERNATIONAL
35-37 Great Charles Street,
Queensway, Birmingham B3 3JY
021-238 3781

NORTH
International House, 84 Deansgate,
Manchester M3 2ER
061-833 0427

BRUSSELS
Avenue Louise 327,
Boite 4, 1050 Brussels
010 322-540 7191/71

HOLLAND
Willemsoordweg 92,
1071 H.M. Amsterdam
010 3120-760947